DOCUMENT RESUME

ED 316 404 SE 051 228

TITLE	Geometry. Report of Student Performance. End of Course Testing, Spring 1989.
INSTITUTION	North Carolina State Dept. of Public Instruction, Div. of Accountability.
PUB DATE	89
NOTE	121p.; For related documents, see SE 051 226-227.
PUB TYPE	Reports - Evaluative/Feasibility (142) -- Statistical Data (110)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	Educational Assessment; *Geometry; High Schools; Mathematical Concepts; *Mathematics Achievement; Mathematics Education; *Mathematics Tests; *Secondary School Mathematics; State Surveys; Statistical Data; *Student Evaluation
IDENTIFIERS	*North Carolina

ABSTRACT

The North Carolina End-of-Course Testing Program was established to provide student, school, and school system information about achievement in high school courses. This report describes: (1) "Geometry End-of-Course Test"; (2) "Scoring Geometry Proofs"; (3) "Characteristics of Geometry Students"; (4) "Student Performance on the Core Test"; (5) "Student Performance on the Common Proof"; (6) "Combining Performance and Participation: Yield and Effective Yield"; (7) "Teacher-Assigned Grades and Scores on the Core Test and the Common Proof"; and (8) "Average Performance on the Curriculum Test." Each Geometry student took one of eight statistically equivalent 60-item tests during the final days of the school year. The average score was 37.5 or 62.6 percent correct. Performance in the core test differed by parental education, ethnic group, grade level in school, sex, and anticipated final course grade. The select group of students taking Geometry in the ninth grade had higher average scores than students at any other grade level. Performance and participation rates in educational regions and public school systems, and state percentile tables for 1989 are provided in the appendices. (YP)

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FOREWORD

The End-of-Course Testing Program was established in 1985-86 to provide comparative information about student performance and curricular information about school and school system performance on the goals and objectives outlined in the *Standard Course of Study* and the *Teacher Handbook*. By assessing student achievement in this manner, state and local educators can determine the degree to which students are meeting the expectations set forth in the *Standard Course of Study*.

Geometry was first assessed in the 1988-89 school year, and is the second course in a math sequence expected of students who plan to attend college. The Geometry End-of-Course Test includes both a multiple-choice test given at the end of the year, and a proofs assessment given in the spring. Average student performance on the multiple-choice test was within the range expected at the first administration. The proofs section of the test is a performance assessment in which students can demonstrate logical and precise thinking skills in developing their own proofs. It is encouraging to note that standards for the proofs assessment are high and that a significant number of students scored at the top of the scale, demonstrating excellent proofing skills. On the other hand, about one-third of the select group of students who take Geometry showed very little skill in proofing.

Performance in this initial year will provide a standard to which growth in Geometry achievement can be compared in future years as school systems put forth their best efforts to improve secondary education in North Carolina.

Bob Etheridge

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State Superintendent of Public Instruction

ABSTRACT

The North Carolina End-of-Course Testing Program was established to provide student, school, and school system information about achievement in high school courses. The first Algebra I End-of-Course Test was administered in 1985-86. Algebra II and Biology were added to the testing program in 1986-87 and U.S. History was added in 1987-88. Geometry and Chemistry were added in 1988-89. Other high school courses will be added in future years.

The 43,325 students who took the Geometry End-of-Course Test in 1988-89 were a subgroup of the high school population. School systems vary in the proportion of students that take Geometry during their school career and in the proportion of students that take Geometry at different grade levels. Geometry is generally the second course in the mathematics sequence following Algebra I. It appears that approximately 49.4 percent of a class of students and 72.5 percent of Algebra I students take Geometry. Students whose parents have no more than a high school education and black students appear to be underrepresented in Geometry classes across the state.

Each Geometry student took one of eight statistically equivalent 60-item tests during the final days of the school year. The average score was 37.5 or 62.6 percent correct. This score is within the range expected at the initial administration of end-of-course tests. Performance on the core test differed by parental education, ethnic group, grade level in school, sex, and anticipated final course grade. Most of the students taking Geometry in the ninth grade are on an accelerated course sequence which includes Algebra I in the eighth grade and Geometry in the ninth grade. The select group of students taking Geometry in the ninth grade had higher average scores than students at any other grade level. The grading standards for ninth-grade performance appear to be higher than the standards for other students.

In addition to the multiple-choice test, Geometry students completed proofs during the spring in what was the first statewide performance assessment involving geometric proofs in the nation. Specially trained Geometry teachers from across the state scored the proofs in regional scoring sessions and results were returned to teachers prior to the end of the school year. Five different proofs were administered in each classroom, with students taking one common proof and one of four variable proofs. Standards for grading the proofs are quite high, with the top score of 4.0 representing a proof which is complete, accurate, logically sequenced, and which contains no mathematically incorrect information. On the common proof, 17.6 percent received scores of 4.0, and 57.4 percent achieved scores of 2.0 or above, demonstrating at least minimal geometric logic in developing the proof. On the other hand, 33.1 percent of the select group of high school students who take Geometry showed very little or no skill in proofing and received scores of 1.0 or below. Performance on the proofs varied by sex, parental education, ethnic group, grade level in school, teacher-assigned proofs grade, and type of proof.

Schools and school systems can identify strengths and weaknesses in their instructional programs by examining performance on the goals and objectives measured by the 480 items administered in 1989. Average performance on the goals ranged from a high of 75.9 to a low of 51.1 percent correct. Therefore, it appears that some areas of the curriculum need greater emphasis statewide.

Report of Student Performance

Geometry

Spring 1989

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Published 1989

ACKNOWLEDGEMENTS

Development of a comprehensive report of student and school system performance in Geometry requires the effort of many individuals. We would like to thank Randy Harter of Buncombe County for suggesting the effective yield index; Kevin Kirby and Marilyn Zuckerman for producing the plots and graphs; George Stubblefield for producing many of the tables; and Faye Atkinson and Stephanie Moultrie for ensuring that the final copies were made, collated, and distributed.

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Introduction

North Carolina has developed six end-of-course tests and is in the process of developing additional end-of-course tests within a number of subject areas. The purposes of the tests are twofold:

1. The tests provide information about each individual student's performance relative to that of other students in North Carolina.

2. The tests provide information about school and school system achievement on the subject area goals and objectives specified in the *Standard Course of Study* and the *Teacher Handbook*.

The development of all the end-of-course tests will require many years of effort. These tests are the final product of a process which includes: curriculum development and review; statewide curriculum surveys; test specification; the writing, review, and field-testing of a large pool of test items matched to objectives in the *Teacher Handbook*; test construction using selected items from the pool; and review, field-testing, and equating of different forms of each test. Several forms of each end-of-course test are developed so that the same tests are not administered in subsequent years.

Based on statewide enrollment patterns and recommendations made by two commissions on education, the courses chosen for initial test development were Biology and Algebra I. Item pools for these two courses were built in the spring of 1985. The results of the item development phase indicated that the Algebra I items were sufficient in quality and quantity to merit building end-of-course tests. Additional Biology items and an item bank for Algebra II were developed during the 1985-86 school year, including field-testing in selected sites in May of 1986. In addition to Algebra I, both Biology and Algebra II End-of-Course Tests were administered statewide at the end of the 1986-87 school year. Since then, tests in additional courses have been added to the End-of-Course Testing Program at the rate of one or two a year. The State Board of Education's schedule for development of end-of-course tests through the 1991-92 school year is displayed in a chart on the final page of this report.

Although end-of-course tests for different subject areas will vary in length, 110 minutes will be sufficient for administration of the multiple-choice tests in all subjects. The State Board of Education requires that end-of-course tests be administered during 110-minute periods within the last 10 days of school, and recommends that they be administered during final exam periods. In order for scores to be returned to school systems prior to the end of the school year, the proofs portion of the Geometry test is administered during regular class periods in the spring. Also, when implemented in 1991-92, the English II essay test may be administered during the spring for scoring to occur prior to the end of the year.

The Geometry End-of-Course Test

The first North Carolina Geometry End-of-Course Test was administered during the 1988-89 school year. At the end of the school year, eight statistically-equivalent test forms were administered in each Geometry classroom. Average core scores for the 1989 administration provide a baseline with which to compare subsequent performance. Statewide performance on the entire set of 480 items provides a standard to which school and school system achievement of goals and objectives can be compared.

One of the major instructional goals of the Geometry curriculum is that students learn how to develop complete proofs. Traditionally, instruction in proofs has been considered an important objective in the high school curriculum for its focus on the development of logical and precise thinking skills. The North Carolina Testing Commission, the Mathematics Section of the Division of

Instructional Services, and the Testing Section of the Division of Accountability have determined that the best way to measure student ability to develop proofs is to have the students formulate actual proofs during end-of-course testing and to have the proofs scored on a common scale. Consequently, in addition to the multiple-choice test, the first statewide performance assessment of student proofing ability in the nation was administered in North Carolina during the 1988-89 school year. Each student completed two proofs during a regular class period during late March or early April. One proof was common and the other was one of four variable proofs, so that five proofs were administered in each classroom. Students received scores on the common proof only. Schools and school systems received scores on the common proof and the four variable proofs.

During the spring of 1989, teachers from across the state scored the common proof and the four groups variable proofs in regional scoring sessions sponsored by the Testing and Mathematics Sections, and supported by local staff development funds. The teachers, who represented almost all of the schools in which Geometry is taught, indicated that participation in the scoring was a valuable staff development activity because they learned an effective scoring method they could use in class, and because the discussion of common standards with their colleagues gave them concrete information about the expectations of the Geometry curriculum. The teachers also felt that having students do actual proofs is a more valid indicator of ability to complete proofs than multiple-choice questions in which students choose from among responses given to them.

Scoring Geometry Proofs

During the summer of 1988 Geometry teachers and mathematics instructional supervisors (the Geometry Advisory Group) were involved in developing a scoring method for proofs written during statewide end-of-course testing. Several proofs which had been field-tested in 1987-88 were scored using two methods: focused holistic scoring and analytic scoring. After examining field-test results, and on the recommendation of the Geometry Advisory Group and the Mathematics Section, the Testing Commission chose the focused holistic method to be used in the statewide assessment of geometric proofs.

Geometry teachers throughout the state have particular grading methods and standards. While individualistic grading methods may have value within classrooms, for the purposes of statewide testing a common grading scale must be used. Teachers as scorers are trained on the common grading scale with annotated examples of each score point so that they are able to remove, at least temporarily, their personal biases concerning the relative importance and appropriateness of certain characteristics of proofs. A scoring guide gives clear definition to each characteristic that Geometry teachers evaluate. Wherever possible, the guide reduces individual judgments to the lowest possible level. It is essential that teachers accept the definitions set forth in the scoring guide for the purposes of scoring proofs during statewide assessments.

Before actual scoring begins, test booklets are divided so that student and school identification information is separated from the proofs. Thus, the teachers as scorers cannot be influenced by such factors as geographical location or the school the student attends. To ensure accuracy in scoring, teachers are required to reach a common understanding of the scoring criteria and score scale through a special training and qualification process. Agreement with other scorers and consistent adherence to the scoring criteria are monitored throughout the scoring session.

Each common proof is scored by two independent scorers who are expected to assign the same score in most cases. For proofs on which the two scores are discrepant by a single score-scale point, a mid-point score is assigned. For example, if Scorer A assigns a proof a score of 2 and Scorer B assigns the proof a score of 1, the score reported to the student and teacher is 1.5. All proofs on which the two scores are discrepant by more than one score-scale point are rescored by specially trained scorers. Over all the proofs scored at the 1989 scoring sessions, 65.9 percent were given the exact same score by both readers, 30.7 percent received scores within one point of each other, and 3.4 percent received scores needing resolution by a third reader. The variable proofs used for school and school system reporting are scored once.

The scoring process requires scorers to assign one score on a 5-point scale which indicates the overall quality of the proof. Each level from 0 to 4 represents better proofing skills in the logical sequence of steps, inclusion of relevant statements and supporting reasons, and accurate use of the language of Geometry. The score points are as follows:

4=The response demonstrates a clear understanding of the proof.
3=The response exhibits a reasonable command of geometric logic in developing the proof.
2=The response demonstrates a weakness in geometric logic in developing the proof.
1=The response exhibits a lack of command of Geometry in developing the proof.
0=Nothing is correct except possibly the given and/or prove steps.

The standards for performance are quite high, with a 4 representing a complete, accurate, and logically sequenced proof that contains no mathematically incorrect information.

Characteristics of Geometry Students

Other North Carolina testing programs assess achievement in basic subject areas of an entire cohort or class of students. End-of-course assessments are different in two ways. First, some of the courses are offered to students at different grade levels. Second, some courses are not required of all students; the students who do take the courses are a subgroup of the total student population. Table 1 compares certain characteristics of both Algebra I and Geometry students with the broader population of all enrolled students. The top portion of the table provides the distribution of Geometry students at various grade levels compared with the average daily membership in those grades. While the largest percentage of Geometry students (47.4) was in the tenth grade, 18.3 percent were in the ninth grade, 26.5 percent were in the eleventh grade and 7.5 percent were in the twelfth grade. Most students taking Geometry in the ninth grade are on an accelerated course sequence which includes Algebra I in the eighth grade and Geometry in the ninth grade.

A cross section of 43,325 students took Geometry in different grade levels in 1988-89. An estimate of 49.4 percent of a cohort, or class, of students who will eventually take Geometry in their school career was obtained by using enrollment in ninth grade as a cohort estimate. This estimate varies considerably among school systems, from a low of 26.2 percent to a high of 83.3 percent (see Table 16 and Figures 17-24 in the Appendix). Using the number of Algebra I students in 1987-88 and the number of Geometry students in 1988-89, it is estimated that approximately 72.5 percent of Algebra I students will take Geometry.

The second section of Table 1 compares the ethnic composition of Geometry classes with the ethnic composition of K-12 pupil membership.[1] Compared with their distribution in the total school population, black students appear to be underrepresented and white students appear to be overrepresented in Geometry classrooms across the state.

The third section of Table 1 compares parental education levels of Geometry students with parental education levels of students in the eighth grade statewide.[2] Students who have parents with an education beyond high school composed 69.7 percent of Geometry students but only 43.0 percent of the eighth-grade class. On the other hand, students with less educated parents appear to be underrepresented in Geometry classes across the state.

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[1] Obtained from Table 11, North Carolina Public Schools, *Statistical Profile 1989*.

[2] Teachers recorded education level of the most educated parent of eighth-grade students taking the California Achievement Tests in 1988-89. Geometry students recorded education level of their most educated parent.

Table 1

North Carolina Geometry Students[1] Compared with 1988-89 First-Month Average Daily Membership in Ninth, Tenth, Eleventh, and Twelfth Grades

Grade	ADM	Geometry Students[1]	Percent of ADM	Percent of Geometry Students
Ninth	87,675	7,923	9.0	18.3
Tenth	82,375	20,550	24.9	47.4
Eleventh	74,622	11,477	15.4	26.5
Twelfth	72,278	3,261	4.5	7.5
Other		114		0.3
TOTAL	316,950	43,325	13.7	100.0

Percent of a class of students[2] taking Geometry = 49.4
Percent of a class of students[2] taking Algebra I = 68.6

1988-89 K-12 Pupil Membership[3], Algebra I, and Geometry Students by Ethnic Group

Ethnic Group	Membership	Percent of Membership	Algebra I Students[1]	Percent of Algebra I	Geometry Students1	Percent of Geometry
American Indian	17,403	1.6	807	1.3	454	1.1
Black	328,395	30.4	15,666	26.2	10,374	24.0
White	720,698	66.7	42,310	70.7	31,479	72.9
Other	13,989	1.3	1,090	1.8	879	2.0
TOTAL	1,080,485	100.0	59,873	100.0	43,186	100.0

Parental Education of Eighth-Grade, Algebra I, and Geometry Students

Parental Education	Eighth Grade Students[4]	Percent of Students[4]	Algebra I Students[1]	Percent of Algebra I	Geometry Students[1]	Percent of Geometry
Eighth Grade or Less	2,091	2.7	529	0.9	256	0.6
8th to 12th	10,814	14.0	5,068	8.5	2,565	6.0
High School Graduate	31,213	40.3	16,356	27.6	10,206	23.7
More Than High School	33,345	43.0	37,409	63.0	29,944	69.7
TOTAL	77,463	100.0	59,362	100.0	42,971	100.0

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[1] As identified in the 1988-1989 administration of the Algebra I or Geometry End-of-Course Test.

[2] The 1988-89 ninth-grade class was used as a proxy for a class of students.

[3] Obtained from Table 11, North Carolina Public Schools, *Statistical Profile 1989*.

[4] As identified in 1988-89 administration of the California Achievement Tests.

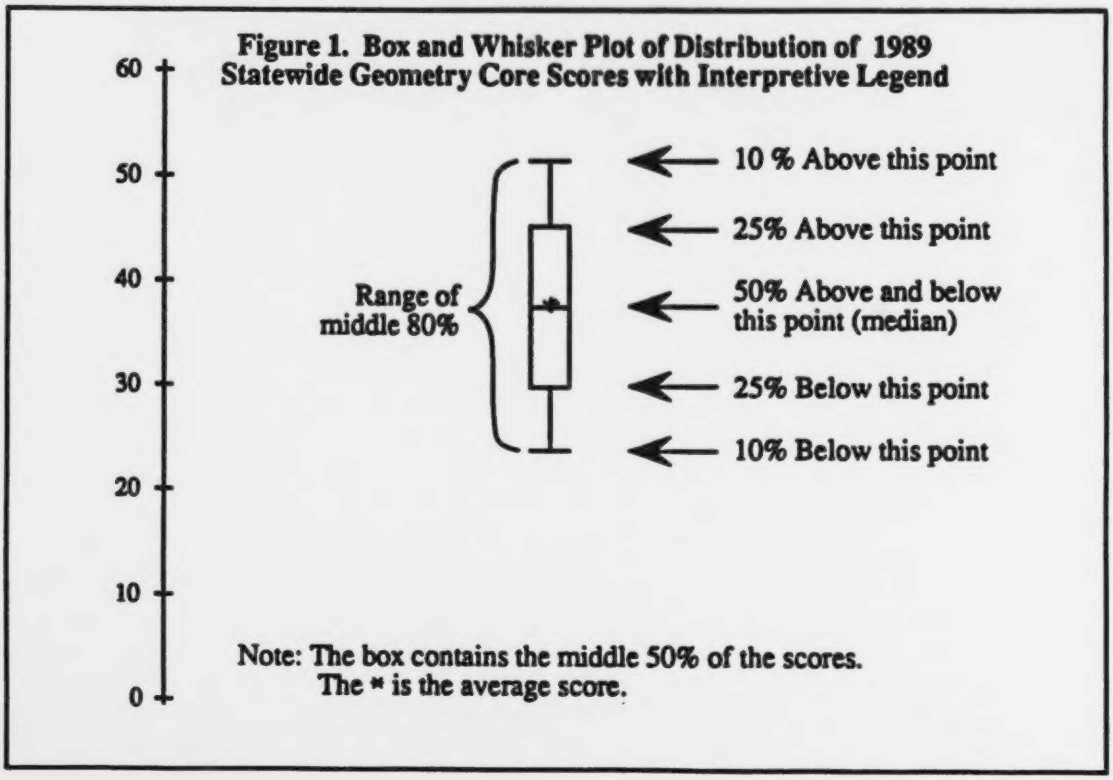
Student Performance on the Core Test

Summary scores for the 1989 60-item core test are presented in Table 2 . In 1989, the average score for the 43,325 students taking the test was 37.5, or 62.6 percent correct. This score is within the range expected at the initial administration of the end-of-course tests. Performance on the 1989 Geometry Test provides a standard to which growth in Geometry achievement can be compared. See the Appendix for the 1989 percentile distribution.

Group achievement on tests, whether for schools, school systems, or the state, is usually reported using summary numbers such as the average or median which indicate typical performance for the group. One number, whether it is the average or the median score, provides limited information about performance. *Box and whisker plots* are graphs which describe not only typical performance, but also the performance of most of the students by showing the spread of scores. Box and whisker plots allow the comparison of the high and low scores for different groups as well as the middle scores.

Figure 1 shows how to interpret the box and whisker plots using statewide Geometry scores for 1988-89. The *box* represents the middle 50 percent of scores with the median represented by a horizontal line inside the box. An '*' inside the box shows the location of the average (mean) score. The *whiskers* extend up to the 90th percentile and down to the 10th percentile. The entire figure shows the range of the middle 80 percent of scores. As can be seen in Figure 1, about 50 percent of Geometry students answered between 30 and 45 (inclusive) items correctly. About 10 percent of the Geometry students scored above 51 and 10 percent scored below 24.

Figure 1. Box and Whisker Plot of Distribution of 1989 Statewide Geometry Core Scores with Interpretive Legend



Note: The box contains the middle 50% of the scores.
The * is the average score.

Table 2

Average Performance on Geometry Core Test: 1989

	Number Tested	Average Score	Average Percent Correct
State	43,325	37.5	62.6
Sex			
Male	19,808	38.7	64.5
Female	23,410	36.6	61.0
Ethnic Group			
American Indian	454	32.5	54.2
Black	10,374	31.7	52.8
White	31,479	39.5	65.8
Other	879	41.4	69.0
Parental Education			
Less than Eighth Grade	256	34.4	57.4
Eighth to Twelfth	2,565	33.1	55.2
High School Graduate	10,206	35.2	58.6
More than Twelfth	9,944	38.8	64.6
Grade in School			
Nine	7,923	46.5	77.6
Ten	20,550	38.1	63.5
Eleven	11,477	32.3	53.8
Twelve	3,261	30.7	51.2
Other	114	45.7	76.2
Type of Class			
Regular Geometry	37,184	36.2	60.3
Honors Geometry	5,795	46.0	76.7

Table 2 also shows average performance on the 60-item core test by sex, parental education, ethnic group, grade in school, and type of class. Figures 2 through 5 show the distributions of Geometry scores by various groups using box and whisker plots.

Although the average performance for males was slightly higher than the average performance for females, their distributions of scores are similar. On average, white students and 'other' students scored higher than American Indian students and black students. In addition, students who have parents educated beyond high school had higher average scores than students who have less educated parents.

The largest difference in average scores appears among students taking Geometry in different grade levels. Only 9.0 percent of the ninth-grade class took Geometry; this select group of high achieving students scored higher than any other group. The average score for ninth-grade students was 46.5, more than 8 points higher than the average score for tenth-grade students, and more than 14 points higher than the average score for eleventh-grade students. In Figure 5 it can be seen that approximately 90 percent of ninth grade students scored above 35 while less than 75 percent of tenth grade students and less than 50 percent of eleventh-grade students scored above this point.

Students in honors Geometry classes scored significantly higher than students in regular Geometry classes. The 13.5 percent of Geometry students who are in honors Geometry classes achieved an average score of 46.0 while students in regular Geometry classes achieved an average score of 36.2.

Student Performance on the Common Proof

Each year the five proofs administered in each classroom will involve all of the following concepts: parallel lines, congruent triangles, similar figures, and quadrilaterals. In 1989 the common proof involved a quadrilateral with congruent triangles.

The percentage of students at each score point on the common proof is presented in Table 3. Approximately 57.4 percent of the students achieved scores of 2.0 or above, demonstrating at least minimal geometric logic in developing the proof. On the other hand, about 33.1 percent of the select group of high school students who take Geometry showed very little or no skill in proofing and received scores of 1.0 or below. Table 3 also shows average performance on the common proof test by sex, parental education, ethnic group, and grade in school. On average, males scored slightly higher than females on the common proof. In addition, white students and 'other' students received significantly more scores of 3.0 or above than did American Indian and black students. Students who have parents educated beyond high school tended to receive higher scores than students who have less educated parents.

Like performance on the core test, the largest difference in the distributions of proof scores appeared among students taking Geometry in different grade levels. The select group of high achieving ninth-grade students scored higher than any other group. On the common proof , the ninth-grade students received more than twice as many perfect scores as tenth-grade students and almost five times as many perfect scores as eleventh-grade students.

Combining Performance and Participation: Yield and Effective Yield

Since Geometry is a selective course not taken by all students, performance may be related to participation within school systems or throughout the state. For example, if only the top 20 percent of students take Geometry, scores will necessarily be higher than if the top 50 percent take Geometry. *Yield* is an index of the effectiveness of a Geometry program which takes into account both participation and performance. It is calculated by multiplying the percent of a class taking

Table 3

Distribution of Scores on the Common Proof: 1989

	Percentage Achieving Each Score Point								
Groups	**0.0**	**0.5**	**1.0**	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**
State	8.4	5.5	19.2	9.4	11.1	8.6	12.9	7.2	17.6
Sex									
Male	8.2	5.0	17.4	8.9	11.3	8.8	13.4	7.9	19.1
Female	8.0	5.4	20.1	9.6	11.3	8.4	13.0	6.9	17.2
Ethnic Group									
American Indian	11.5	9.4	24.3	11.7	14.0	9.2	7.6	5.0	7.3
Black	13.9	8.3	26.7	10.9	11.4	7.6	9.5	3.9	7.9
White	6.1	4.2	16.4	8.7	11.4	8.9	14.5	8.4	21.4
Other	6.9	3.9	13.5	6.9	9.4	8.1	15.5	10.7	25.3
Parental Education									
Less than Eighth Grade	11.6	4.4	24.1	13.3	8.8	6.8	12.9	6.4	11.6
Eighth to Twelfth	11.2	8.0	24.2	10.5	11.9	7.4	10.5	5.4	11.0
High School Graduate	9.7	6.1	21.4	10.7	11.7	8.3	12.5	5.9	13.7
More than Twelfth	7.2	4.7	17.5	8.6	11.2	8.8	13.7	8.0	20.3
Grade in School									
Nine	2.0	1.0	7.5	5.1	8.8	8.2	16.4	13.3	37.7
Ten	6.5	4.5	18.4	9.5	12.0	9.4	14.5	7.5	17.7
Eleven	12.9	8.3	26.0	11.3	12.1	7.9	9.8	3.8	7.8
Twelve	16.4	9.0	25.9	10.8	11.0	6.6	9.4	4.0	6.8

N=43,926

Figure 2. Distributions of Geometry Core Scores by Sex -- 1989

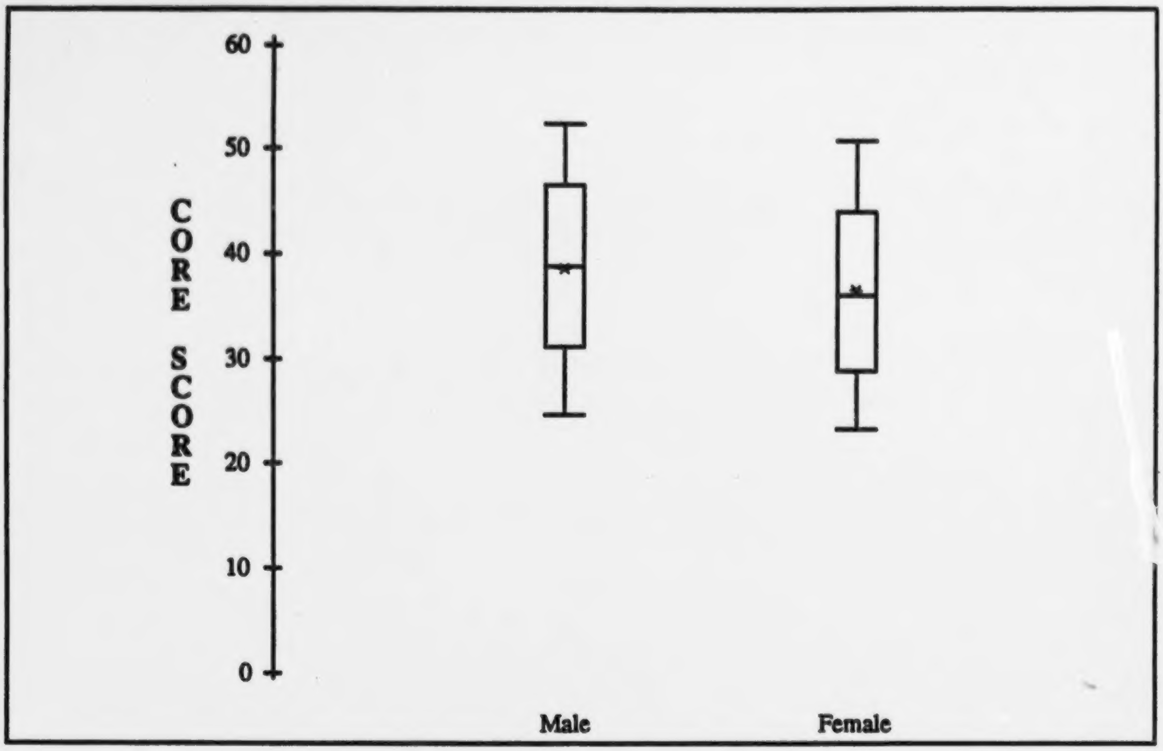


Figure 3. Distributions of Geometry Core Scores by Ethnic Group -- 1989

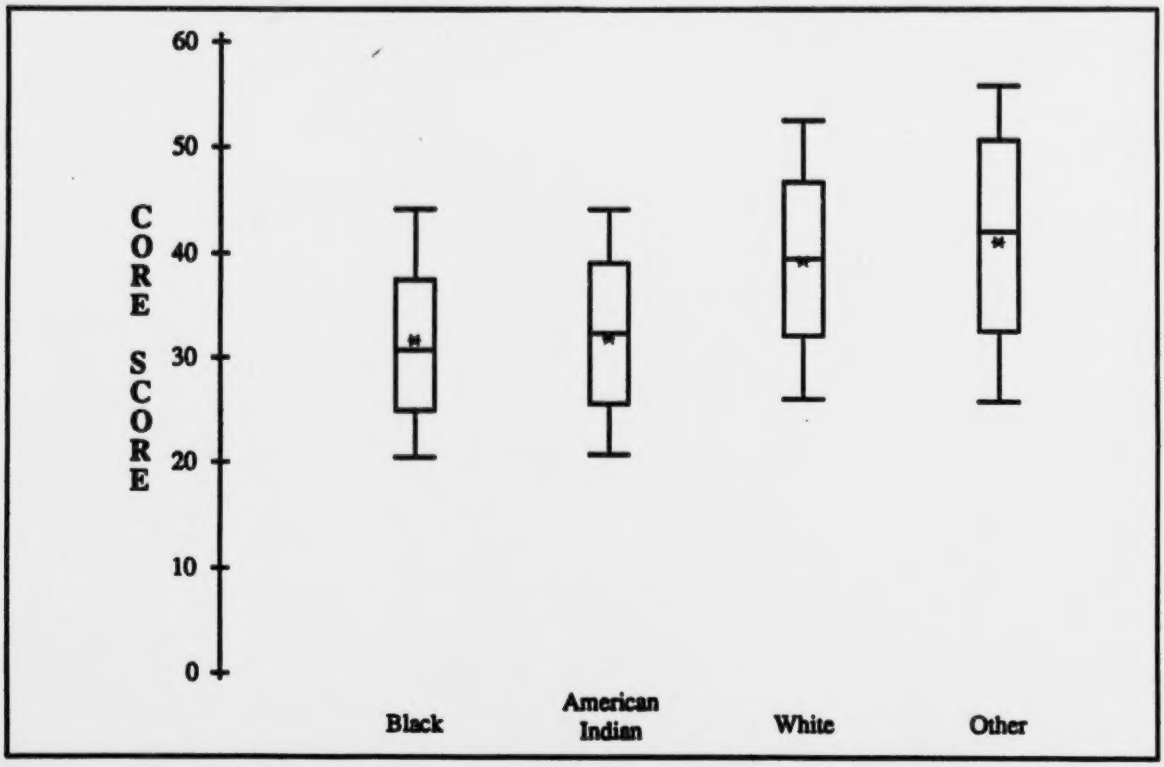


Figure 4. Distributions of Geometry Core Scores by Parental Education -- 1989

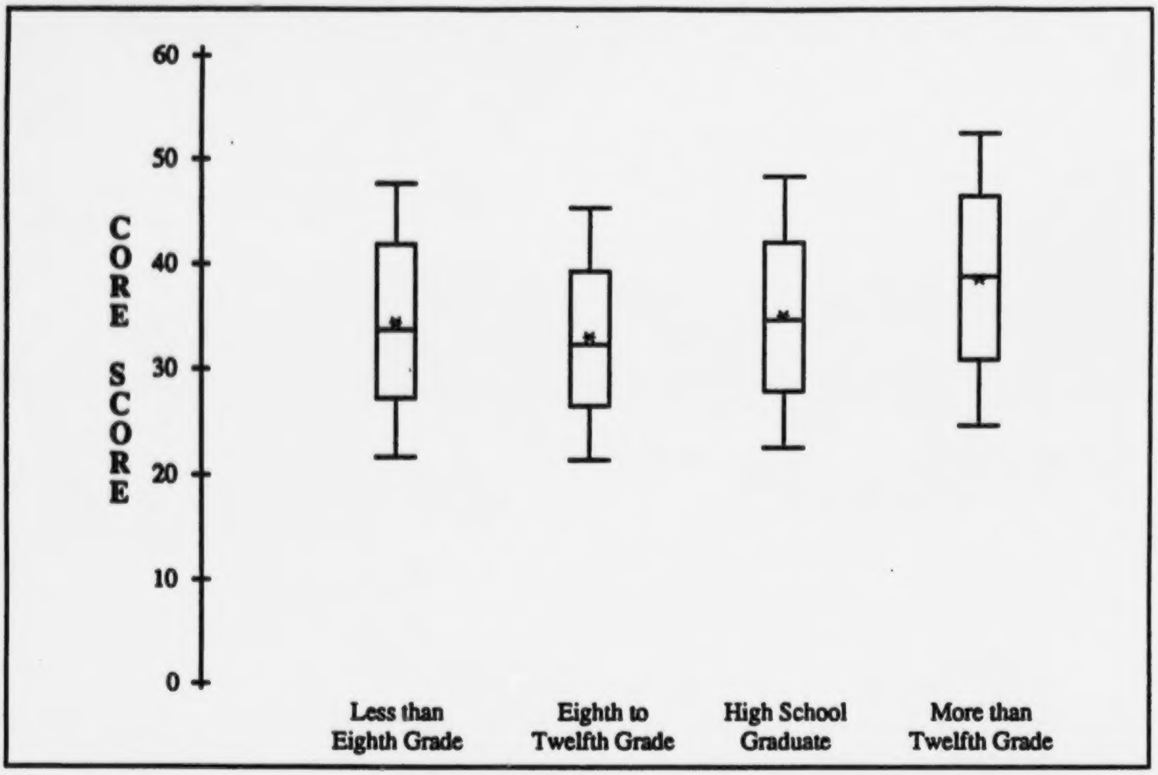
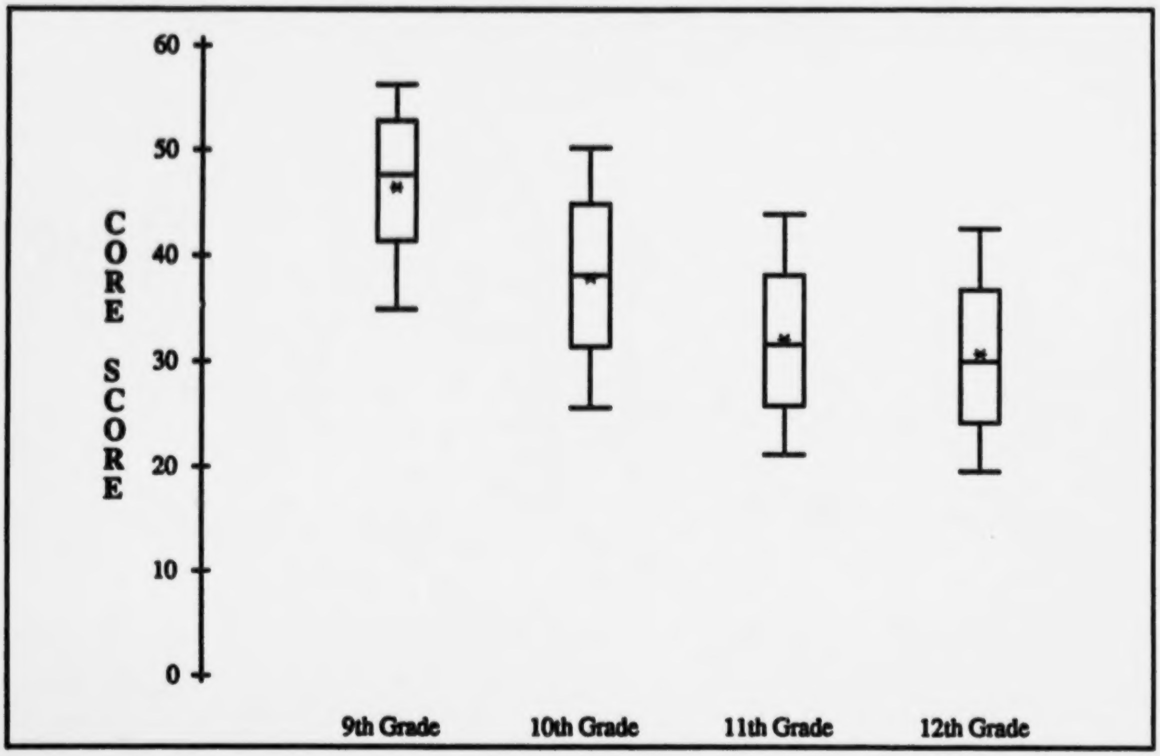


Figure 5. Distributions of Geometry Core Scores by Grade Level -- 1989



Geometry by the percent of core items answered correctly and then multiplying by 100. Yield would be 100 if all students took Geometry and all students achieved a perfect score. For the state, approximately 49.4 percent of a class of students took Geometry in 1988-89 and these students achieved an average of 62.6 percent of core items correct, producing a yield of 30.9. If average achievement does not change, yield will increase whenever participation increases.

Effective Yield is a similar index but it counts as 'participating' in Geometry only those students whose achievement is above a certain cutoff point. This cutoff point is an estimation of whether or not they will pass the course. The estimate for the cutoff point is 25. In 1988-89 Geometry teachers indicated that approximately 12.5 percent of their students would receive a final grade of 'F'; the same year about 11.2 percent of students received a score below 25. For the state, the 'effective' percent of a class, i.e. students scoring at or above 25 in 1988-89, was 38,476 of the 87,675 students estimated to be in the cohort, or 43.9 percent, producing an effective yield of 27.5. Effective yield will be the same as yield only when all students taking Geometry achieve at or above the estimated passing score of 25. Therefore, the effective yield index will normally be lower than the yield index.

An index of the effectiveness of instruction in proofing skills (*proofs yield*) can be obtained by multiplying the percentage of students obtaining a score of 2.0 or better by the percent of a class taking Geometry and then multiplying by 100.

Table 4 shows the yield and effective yield indices for the 1989 Geometry core test, and the proofs yield index for the proofs portion of the test.

Table 4

Geometry Yield, Effective Yield, and Proofs Yield Indices for 1989

Yield	30.9
Effective Yield	27.5
Proofs Yield	28.4

The 1989 core performance, participation (percent of class), yield, effective yield, percent obtaining a score of 2.0 or above, and proofs yield for all 139 school systems in the state are presented by region in Table 15 in the Appendix. Comparisons among school systems should always be sensitive to the fact that the social and demographic factors which are strongly related to differences in achievement are not distributed evenly across the state. These factors influence the yield indices as well as performance. For example, school systems in high socio-economic areas should have both high participation and performance, resulting in high yield and effective yield indices. One appropriate comparison might be among school systems with similar socio-economic characteristics. Another would involve comparing yield and effective yield indices for a school system across time to look for changes in participation and performance.

The participation rates and average core performance for school systems are displayed in Figures 17 through 24. Participation rates and percentages of students obtaining proof scores of 2.0 or above are presented in Figures 26 through 33. Vertical arrows represent the state averages. The lengths of the bars give a rough indication of yield and provide a visual representation of the effectiveness of school system Geometry programs. School systems for which both bars extend beyond the state averages have both higher than average participation in Geometry, and above average performance on the Geometry core test or the proofs test.

Teacher-Assigned Grades and Scores on the Core Test and the Common Proof

Geometry teachers were asked to record each student's anticipated final grade on each answer sheet after the test was administered. Final grades were recorded for 43,067 of 43,325 Geometry students. Table 5 gives the average score for various grade groups on the test and the percentages of students who were to receive the various grades for 1989. A consistent difference of about 5 raw score points was observed between score averages for different anticipated final grades. This pattern is an indication of test validity in that the results parallel the grading practices of teachers. The average for 'C' students was similar to the statewide average, placing these students in the middle of the score distribution.

Table 6 compares the average scores by anticipated grades among ninth, tenth, and eleventh-grade students for 1989. At each anticipated final grade level, average scores for the select group of ninth-grade students are consistently higher than those for tenth-grade students, which are consistently higher than those for eleventh-grade students. Greater proportions of students receive 'A's or 'B's in the ninth grade than in the tenth grade and greater proportions of tenth-grade students receive 'C's, 'D's or 'F's than ninth-grade students. Box and whisker plots for the score distributions for each letter grade are displayed in Figure 6. The plot illustrates the spread of score points within letter grades and overlap in distributions across letter grades. For example, while the the typical 'F' student scored well below the typical 'D' student, approximately 10 percent of 'F' students received an above average core score.

Teachers also were asked to record an overall proofs grade for each student when the proofs portion of the test was administered. The percentages of students achieving each score point on the common proof for each teacher-assigned grade level are given in Table 7. Of students who were earning 'A's on their performance on proofs throughout the year, 49.0 percent received perfect scores of 4.0, and 81.8 percent received scores of at least 3.0. Among 'F' students, approximately 69.5 percent received scores of 1.0 or below on the common proof. Again, the pattern of scores for different grades is an indication of the validity of the proof test and the score scale.

Figure 6. Distributions of Geometry Core Scores
by Anticipated Final Grade -- 1989

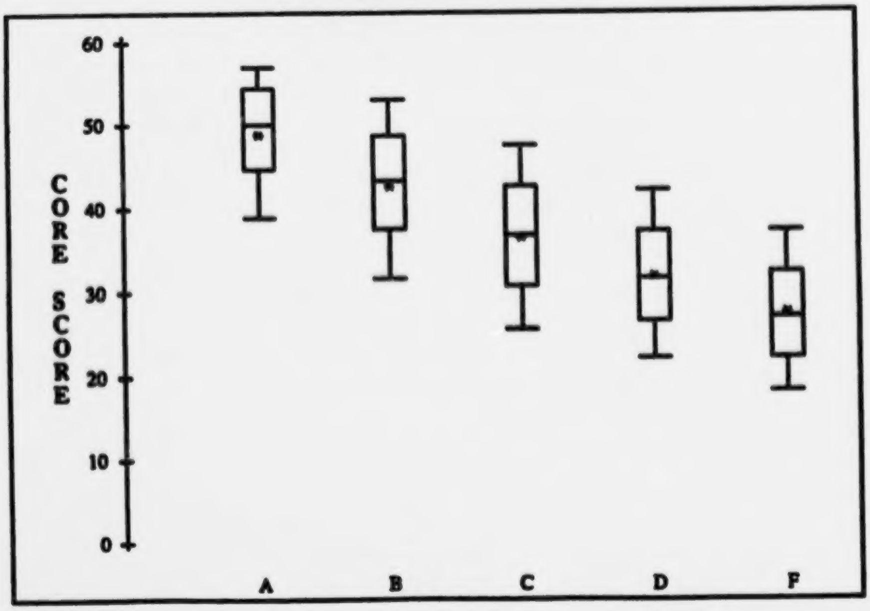


Table 5

Average 60-Item Core Scores by Anticipated Final Grade and Percentage of Students Receiving Each Grade*

Grades	Average	Percent
A	48.9	13.2
B	42.8	23.7
C	36.7	27.6
D	32.1	22.9
F	27.5	12.5

Table 6

Average 60-Item Core Scores by Anticipated Final Grade and Percentage of Students Receiving Each Grade within Ninth, Tenth and Eleventh Grades*

	Average Scores for Each Grade			Percent Receiving Each Grade		
Grades	Grade 9	Grade 10	Grade 11	Grade 9	Grade 10	Grade 11
A	51.6	47.7	43.6	29.6	13.6	3.9
B	47.3	41.8	38.5	38.5	26.1	13.1
C	42.6	37.0	33.8	21.9	30.3	27.4
D	38.2	33.2	30.7	7.8	20.6	33.3
F	33.5	28.4	27.0	2.2	9.4	22.4

*N= 43,067; Grade 9 N=7,858; Grade 10 N=20,443; Grade 11 N=11,416

Table 7

Distribution of Scores of the Common Proof by Teacher-Assigned Proof Grades

	Percentage Achieving Each Score Point									
Grades	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	Totals
A	0.4	0.4	2.7	2.1	5.9	6.7	16.6	16.2	49.0	12.8
B	1.4	1.2	7.3	6.3	10.5	10.3	19.0	12.6	31.5	20.4
C	4.5	3.6	18.1	11.1	14.4	11.2	16.1	6.8	14.1	25.0
D	10.2	8.1	28.6	13.8	13.0	8.8	9.7	3.1	4.7	22.5
F	23.5	12.9	33.1	10.7	9.0	4.5	3.9	1.0	1.4	19.3

N=43,103

Average Performance on the Curriculum Test

Table 8 shows average performance on the goals as measured by the 480 items assessed in 1989, for all Geometry students in the state, and by sex, ethnic group, parental education level, and grade in school. In Table 9, performance on the four variable proofs and the common proof are disaggregated by sex, ethnic group, parental education, and grade in school. Performance on most objectives can be reported by performance on the 480 items measured in 1989 (see Table 10). The average scores reported in Table 10 include objectives for which there were at least four items in 1989. Goal and objective scores yield important information about performance within specific areas in the curriculum. The average percentage correct of all items measured in 1989 was 62.6.

The first two goals consist of objectives that review mathematical concepts which are needed in the study of Geometry, but which are taught in earlier courses. Average performance for these goals was somewhat higher than the average over all goals. Also, performance was above average for Goal 3, in which students are taught the general principles involved in developing proofs, including the logic of "if-then" statements, converses of conditional statements, hypotheses and conclusions, and deductive reasoning.

The highest overall performance (75.9 percent) was exhibited on Goal 4, in which students use properties of angles and lines. Average performance was about 5 to 10 percentage points lower when the geometric figures became slightly more complex, involving perpendicular lines and planes, parallel lines and planes, polygons, and congruent triangles (Goals 5 through 8). The transition from congruency to similarity (Goal 9) seems to be somewhat difficult for students, with the average score dropping from about 66.6 to 56.4 percent correct. Also, solving problems involving similarity often involves using ratios and proportions, which are difficult for students in Algebra I as well.

Using right triangles to solve problems is the subject of Goal 10. The important concepts covered in this goal are part of the foundation for understanding advanced mathematics such as trigonometry. Average performance on the 24 items measuring this goal in 1989 was 51.1 percent correct. For many of the exercises involving right triangles students must work with radical expressions which should be covered at the very end of Algebra I, but which may not be reached in many Algebra I classes.

Average performance also was lower for the final two goals in which students find the perimeter, area, and volume of geometric figures and investigate the properties of coordinate Geometry. Students had the most difficulty (performance just under 35 percent correct) with the three objectives in these two goals in which students compute arc lengths and areas of sectors of a circle; compute the lateral area, total area, and volume of a right prism or pyramid; and write equations for vertical and horizontal lines in the coordinate plane.

The focus of Goal 3 is general instruction in the logic of geometric proofs, with other goals focusing on specific topics in proofing. Four of the most important topics, parallel lines, congruent triangles, similar figures, and quadrilaterals, are covered in one or more of the five proof exercises administered in every classroom. Of the variable proofs, performance was highest on the "perpendicular bisector" proof, which involved congruent triangles. Scores were evenly distributed among the 1.0 through 4.0 score points, with approximately 22 percent of the students receiving perfect scores.

The "parallel lines" proof involved congruent triangles and parallel lines. While approximately 20 percent received score of 4.0, the high proportion of scores in the 0.0 to 2.0 (72.0 percent) range indicates that students either knew how to solve this proof or they did not , constructing proofs which were largely incorrect or off base.

The "three-dimensional" proof, also involving congruent triangles, was clearly the most difficult for the students. About 59.0 percent received scores of 0.0 or 1.0, and over 90.0 percent received scores of 2.0 or below. Apparently, students had difficulty visualizing the three dimensions and many did not know how to develop proofs with a line perpendicular to a plane.

Also difficult for the students was the "similar triangles" proof. Only 8.0 percent of the students received scores of 4.0, and about 54.0 percent received scores of 1.0 or below. Like performance on the similar polygons items on the multiple-choice test, students may have difficulty making the transition from congruency to similarity.

Statewide performance across all Geometry goals and objectives shows areas of strength and areas in which improvement is needed. As schools and school systems examine their own performance on these goals and objectives, they can identify patterns of strengths and weaknesses relative to statewide performance.

Table 8

1989 Summary Results for Geometry: 60-Item Core Test and 480-Item Curriculum Test

STATE REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE, & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
ALL STUDENTS TESTED																		
	43325	66.9	68.9	66.0	75.9	69.4	65.3	65.3	66.6	56.4	51.1	60.9	53.2	53.2	37.5	62.6	300.4	62.6
SEX																		
MALE	19808	69.8	70.5	64.6	76.7	73.3	68.7	67.3	68.8	58.4	53.0	63.3	54.8	55.3	38.7	64.5	309.7	64.5
FEMALE	23410	64.5	67.5	67.2	75.2	66.1	62.4	63.6	64.8	54.8	49.5	58.8	51.9	51.5	36.6	61.0	292.7	61.0
PARENTAL EDUCATION																		
LESS THAN 8TH	256	60.4	64.4	63.3	69.5	63.8	61.7	59.4	61.6	52.0	44.6	56.4	46.6	47.3	34.4	57.4	275.3	57.4
8TH TO 12TH	2565	59.5	61.2	61.8	68.9	59.5	57.4	57.7	59.5	48.8	43.2	53.8	45.0	45.3	33.1	55.2	265.1	55.2
HIGH SCHOOL	10206	63.1	65.3	63.3	72.3	64.6	60.9	61.2	63.0	52.0	46.8	57.3	49.0	49.3	35.2	58.6	281.6	58.7
MORE THAN 12TH	29944	68.9	70.9	67.4	77.8	72.0	67.5	67.4	68.5	58.7	53.3	62.7	55.4	55.4	38.8	64.6	310.3	64.6

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 8, cont'd.

STATE REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
GRADE IN SCHOOL																		
NINE	7923	79.6	82.6	77.6	88.9	86.6	80.9	81.7	81.3	73.8	68.7	74.5	69.2	67.9	46.5	77.6	372.3	77.6
TEN	20550	67.8	69.5	66.7	77.6	70.5	66.4	66.6	67.6	56.9	51.5	61.6	53.7	53.7	38.1	63.5	304.6	63.5
ELEVEN	11477	59.1	61.0	59.3	67.0	59.1	55.9	55.1	57.6	46.8	41.4	53.0	44.3	45.5	32.3	53.8	258.2	53.8
TWELVE	3261	57.1	58.6	56.1	64.0	56.3	52.8	52.7	55.5	44.5	38.9	50.4	42.0	41.8	30.7	51.2	245.7	51.2
OTHER	114	79.6	81.0	72.8	85.3	82.2	79.5	76.1	79.8	73.5	69.2	74.5	69.5	69.3	45.7	76.2	364.8	76.0
ETHNIC GROUP																		
AMER. INDIAN	454	59.4	60.8	60.8	68.6	59.5	56.1	55.8	58.3	46.8	40.9	54.1	43.9	43.8	32.5	54.2	259.8	54.1
BLACK	10374	55.2	59.5	60.9	65.7	56.4	54.2	55.4	56.6	47.2	41.6	51.5	44.5	42.2	31.7	52.8	253.7	52.9
WHITE	31479	70.7	71.9	67.7	79.2	73.7	68.9	68.5	69.8	59.4	54.1	63.9	56.0	56.8	39.5	65.8	315.6	65.8
OTHER	879	71.8	75.2	67.7	79.3	72.9	72.5	72.2	72.7	65.2	60.8	66.5	61.3	60.5	41.4	69.0	331.0	69.0

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 9

1989 Summary Results for Geometry Proofs

STATE REPORT

		VARIABLE PROOFS																												
	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
ALL STUDENTS TESTED																														
	43926	7	26	26	20	22	16	43	32	8	1	29	30	13	9	20	17	37	22	16	8	8	5	19	9	11	9	13	7	18
SEX																														
MALE	19291	7	24	25	21	22	15	40	34	9	2	26	27	14	11	22	17	36	22	16	9	8	5	17	9	11	9	13	8	19
FEMALE	22799	6	26	26	20	22	14	45	31	8	1	29	32	13	9	18	16	38	22	16	9	8	5	20	10	11	8	13	7	17
PARENTAL EDUCATION																														
LESS THAN 8TH	249	9	25	33	7	25	27	43	28	0	2	28	46	6	7	13	20	47	10	15	7	12	4	24	13	9	7	13	6	12
8TH TO 12TH	2466	8	35	26	17	14	19	50	26	5	0	37	35	11	6	11	23	45	19	9	4	11	8	24	11	12	7	10	5	11
HIGH SCHOOL	9953	7	29	28	18	18	17	47	29	6	1	31	34	13	7	14	19	42	21	13	5	10	6	21	11	12	8	12	6	14
MORE THAN 12TH	29188	6	23	25	22	24	14	40	34	10	2	25	28	14	11	23	15	35	23	17	10	7	5	18	9	11	9	14	8	20

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 9, cont'd.

STATE REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
GRADE IN SCHOOL																														
NINE	7820	2	8	18	29	43	4	27	45	21	4	10	15	13	17	45	4	18	26	32	21	2	1	7	5	9	8	16	13	38
TEN	19998	6	23	27	21	22	14	45	33	7	1	25	31	15	10	19	14	38	25	15	8	6	5	18	10	12	9	14	8	18
ELEVEN	11103	10	37	28	14	11	22	50	24	3	0	40	36	11	6	7	25	48	16	8	2	13	8	26	11	12	8	10	4	8
TWELVE	3162	12	37	29	14	7	24	48	26	3	0	41	38	11	4	6	33	44	13	8	2	16	9	26	11	11	7	9	4	7
ETHNIC GROUP																														
AMER. INDIAN	436	11	31	37	14	6	16	67	16	1	0	36	39	9	8	8	24	51	17	6	2	11	9	24	12	14	9	8	5	7
BLACK	10089	10	36	27	13	13	23	49	23	4	0	42	37	9	5	7	27	44	17	8	4	14	8	27	11	11	8	9	4	8
WHITE	30681	5	21	25	23	25	12	40	36	10	2	23	28	15	11	23	13	35	24	18	10	6	4	16	9	11	9	14	8	21
OTHER	854	6	17	24	20	34	10	38	32	17	4	14	25	11	15	34	15	27	24	24	10	7	4	13	7	9	8	15	11	25

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 10

1989 Summary Results for Geometry Goals and Objectives

		STATE
GOAL 1:	STATE THE CHARACTERISTICS OF SETS OF POINTS (48)	66.9
1.1:	IDENTIFY AND NAME SETS OF POINTS, SUCH AS LINE, RAY, SEGMENT AND PLANE (0)	***
1.2:	DRAW REPRESENTATIONS OF POINTS, LINES, AND PLANES (0)	***
1.3:	IDENTIFY AND NAME UNIONS AND INTERSECTIONS OF SETS OF POINTS (8)	61.2
1.4:	FIND THE COORDINATE OF A POINT ON A LINE (0)	***
1.5:	FIND THE LENGTH OF A SEGMENT (8)	65.5
1.6:	IDENTIFY CONGRUENT SEGMENTS (0)	***
1.7:	IDENTIFY THE MIDPOINT OF A GIVEN SEGMENT (8)	68.8
1.8:	USE A PROTRACTOR TO FIND THE MEASURE OF AN ANGLE (0)	***
1.9:	DETERMINE WHEN TWO ANGLES ARE CONGRUENT (8)	79.3
1.10:	IDENTIFY INTERIORS AND EXTERIORS OF GEOMETRIC FIGURES (8)	62.0
1.11:	IDENTIFY THE BISECTOR OF AN ANGLE (8)	64.7
GOAL 2:	USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER (16)	68.9
2.1:	STATE AND USE THE PROPERTIES OF EQUALITY (8)	63.7
2.2:	STATE AND USE THE PROPERTIES OF INEQUALITY (8)	74.0
GOAL 3:	DEVELOP GEOMETRIC PROOFS (32)	66.0
3.1:	TRANSLATE A GEOMETRIC STATEMENT INTO AN "IF-THEN STATEMENT" (8)	82.6
3.2:	STATE THE CONVERSE OF A CONDITIONAL STATEMENT (8)	58.0
3.3:	STATE THE HYPOTHESIS AND CONCLUSION FOR A CONDITIONAL STATEMENT (8)	49.1
3.4:	USE THE PROCESS OF DEDUCTIVE REASONING IN MATHEMATICAL AND NON-MATHEMATICAL SITUATIONS (8)	74.2
3.5:	WRITE A PROOF USING THE TWO-COLUMN FORMAT (0)	***
3.6:	WRITE AN INDIRECT PROOF (0)	***
GOAL 4:	USE SOME OF THE PROPERTIES OF ANGLES AND LINES TO DEVELOP PROOFS AND SOLVE EXERCISES(40)	75.9
4.1:	USE THREE LETTERS, A NUMBER, OR A SINGLE LETTER TO NAME AN ANGLE (0)	***
4.2:	CLASSIFY AN ANGLE (8)	79.6
4.3:	IDENTIFY ADJACENT AND VERTICAL ANGLES (8)	81.3
4.4:	DETERMINE THE COMPLEMENT AND SUPPLEMENT OF A GIVEN ANGLE (8)	65.6
4.5:	APPLY THE ANGLE ADDITION POSTULATE (8)	76.4
4.6:	APPLY THE SEGMENT ADDITION POSTULATE (8)	76.4
4.7:	RECOGNIZE CONGRUENT ANGLES (0)	***

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS. OBJECTIVES 1.1, 1.2, 1.4, 1.8, 4.1, 4.7 AND 12.5 ARE NOT MEASURED DIRECTLY, BUT INCLUDE SKILLS THAT ARE TESTED IN OTHER OBJECTIVES. OBJECTIVE 5.6 IS TESTED WITH ACTUAL PROOFS. THE NUMBER OF ITEMS PER GOAL AND OBJECTIVE IS REPORTED IN PARENTHESES.

Table 10, cont'd.

GOAL 5:	RECOGNIZE PERPENDICULAR LINES AND PLANES AND USE THIS INFORMATION TO COMPLETE PROOFS AND EXERCISES (8)	69.4
5.1:	APPLY DEFINITIONS OF PERPENDICULAR LINES AND PLANES (8)	69.4
GOAL 6:	RECOGNIZE PARALLEL LINES AND PLANES AND USE THIS KNOWLEDGE TO COMPLETE PROOFS AND EXERCISES (40)	65.3
6.1:	IDENTIFY PARALLEL LINES AND PLANES, AND SKEW LINES (8)	67.6
6.2:	IDENTIFY CORRESPONDING ANGLES AND ALTERNATE INTERIOR ANGLES WHICH ARE FORMED WHEN TWO PARALLEL LINES ARE CUT BY A TRANSVERSAL (8)	69.9
6.3:	STATE CONDITIONS UNDER WHICH LINES ARE PARALLEL (8)	64.9
6.4:	STATE WHICH ANGLES ARE CONGRUENT WHEN TWO PARALLEL LINES ARE CUT BY A TRANSVERSAL (8)	68.0
6.5:	IDENTIFY WHICH ANGLES ARE SUPPLEMENTARY WHEN LINES ARE CUT BY A TRANSVERSAL (8)	55.9
GOAL 7:	IDENTIFY POLYGONS AND COMPLETE PROOFS AND EXERCISES RELATED TO THEM (60)	65.3
7.1:	CLASSIFY A TRIANGLE ACCORDING TO ITS SIDES (8)	79.3
7.2:	CLASSIFY A TRIANGLE ACCORDING TO ITS ANGLES (8)	62.4
7.3:	CLASSIFY A POLYGON ACCORDING TO THE NUMBER OF ITS SIDES OR ANGLES (8)	71.3
7.4:	CLASSIFY A CONVEX POLYGON ACCORDING TO THE MEASURE OF ITS ANGLES (4)	59.0
7.5:	APPLY THE FACT THAT THE SUM OF THE MEASURES OF THE ANGLES OF A TRIANGLE IS 180 (8)	68.5
7.6:	FIND THE MEASURES OF THE EXTERIOR ANGLES OF A TRIANGLE (8)	68.7
7.7:	FIND THE MEASURES OF THE INTERIOR AND EXTERIOR ANGLES OF A CONVEX POLYGON (8)	49.3
7.8:	APPLY THE CHARACTERISTICS OF VARIOUS QUADRILATERALS (8)	60.6
GOAL 8:	IDENTIFY CONGRUENT TRIANGLES AND COMPLETE PROOFS AND EXERCISES RELATED TO THEM (36)	66.6
8.1:	LIST THE CORRESPONDING PARTS OF TWO CONGRUENT TRIANGLES (8)	80.2
8.2:	USE VARIOUS POSTULATES AND THEOREMS TO PROVE TWO TRIANGLES ARE CONGRUENT AND THEIR CORRESPONDING PARTS ARE CONGRUENT (8)	69.9
8.3:	IDENTIFY THE ALTITUDES AND MEDIANS OF TRIANGLES (8)	65.5
8.4:	APPLY THE THEOREM ABOUT THE SEGMENT JOINING THE MIDPOINTS OF TWO SIDES OF A TRIANGLE (8)	61.0
8.5:	APPLY THE THEOREM ABOUT THE INTERSECTION OF THE MEDIANS OF A TRIANGLE (4)	46.1
GOAL 9:	DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR AND DEVELOP PROOFS AND SOLVE EXERCISES RELATED TO THEM (64)	56.4
9.1:	IDENTIFY REGULAR POLYGONS AND DETERMINE THE MEASURES OF THE ANGLES (8)	51.2
9.2:	SOLVE A PROPORTION (8)	70.7
9.3:	USE PROPORTIONS TO SOLVE GEOMETRIC PROBLEMS (8)	60.0
9.4:	FIND THE GEOMETRIC MEAN OF TWO NUMBERS (8)	50.6
9.5:	DETERMINE WHETHER OR NOT TWO POLYGONS ARE SIMILAR (8)	54.5
9.6:	PROVE TWO TRIANGLES ARE SIMILAR (8)	51.6
9.7:	APPLY PROPERTIES OF SIMILAR TRIANGLES TO FIND CORRESPONDING PROPORTIONAL SIDES (8)	58.7
9.8:	APPLY THEOREMS WHICH INVOLVE DIVIDING SEGMENTS PROPORTIONALLY (8)	54.2

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS. OBJECTIVES 1.1, 1.2, 1.4, 1.8, 4.1, 4.7 AND 12.5 ARE NOT MEASURED DIRECTLY, BUT INCLUDE SKILLS THAT ARE TESTED IN OTHER OBJECTIVES. OBJECTIVE 5.6 IS TESTED WITH ACTUAL PROOFS. THE NUMBER OF ITEMS PER GOAL AND OBJECTIVE IS REPORTED IN PARENTHESES.

Table 10, cont'd.

GOAL 10:	STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE AND SOLVE EXERCISES RELATED TO THEM (24)	51.1
10.1:	STATE TWO RELATIONSHIPS THAT EXIST IN A RIGHT TRIANGLE (8)	46.1
10.2:	USE THE PYTHAGOREAN THEOREM AND ITS CONVERSE TO FIND THE LENGTHS OF THE SIDES OF A RIGHT TRIANGLE OR A QUADRILATERAL (8)	56.7
10.3:	USE THE RELATIONSHIPS THAT EXIST IN SPECIAL RIGHT TRIANGLES TO SOLVE PROBLEMS (8)	50.3
10.4:	USING A TABLE AND/OR CALCULATOR, APPLY THE DEFINITIONS OF SINE, COSINE, AND TANGENT TO SOLVE RIGHT TRIANGLES (0)	***
GOAL 11:	LIST SOME CHARACTERISTICS OF A CIRCLE AND DEVELOP PROOFS AND SOLVE EXERCISES RELATED TO THEM (40)	60.9
11.1:	USE THE DEFINITIONS OF A CIRCLE AND THE LINES AND SEGMENTS RELATED TO IT (8)	68.4
11.2:	RECOGNIZE POLYGONS INSCRIBED IN OR CIRCUMSCRIBED ABOUT A CIRCLE (8)	64.2
11.3:	APPLY THE PROPERTIES INVOLVING ARCS AND ANGLES OF CIRCLES (8)	63.0
11.4:	APPLY THE THEOREMS ABOUT THE CHORDS OF A CIRCLE (8)	62.5
11.5:	APPLY THE THEOREMS THAT RELATE TO THE TANGENTS, SECANTS, AND RADII OF A CIRCLE (8)	46.3
GOAL 12:	FIND THE PERIMETER, AREA, AND VOLUME OF GEOMETRIC FIGURES (40)	53.2
12.1:	FIND THE PERIMETER OF A GEOMETRIC FIGURE (8)	67.2
12.2:	COMPUTE THE AREA OF A TRIANGLE, PARALLELOGRAM, TRAPEZOID, AND RECTANGLE (8)	52.9
12.3:	FIND THE RATIO OF BOTH THE AREAS AND THE PERIMETERS OF SIMILAR TRIANGLES (4)	56.0
12.4:	COMPUTE THE APOTHEM, RADIUS, AND AREA OF SPECIAL REGULAR POLYGONS (4)	53.9
12.5:	COMPUTE THE CIRCUMFERENCE AND AREA OF A CIRCLE (0)	***
12.6:	COMPUTE ARC LENGTHS AND THE AREAS OF SECTORS OF A CIRCLE (4)	34.6
12.7:	IDENTIFY AND DESCRIBE SPACE FIGURES (4)	65.0
12.8:	COMPUTE THE LATERAL AREA, TOTAL AREA, AND VOLUME OF A RIGHT PRISM OR PYRAMID (4)	32.2
12.9:	COMPUTE THE LATERAL AREA AND VOLUME OF A RIGHT CIRCULAR CYLINDER OR CONE (4)	50.0
GOAL 14:	INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY (32)	53.2
14.1:	WRITE THE COORDINATES FOR A POINT IN THE COORDINATE PLANE (8)	63.2
14.2:	WRITE EQUATIONS FOR VERTICAL AND HORIZONTAL LINES IN THE COORDINATE PLANE (4)	34.9
14.3:	USE THE DISTANCE FORMULA TO SOLVE PROBLEMS (8)	57.5
14.4:	USE THE MIDPOINT FORMULA TO FIND THE COORDINATES OF THE MIDPOINT OR ENDPOINT OF A SEGMENT (8)	56.2
14.7:	WRITE AN EQUATION FOR A LINE WHICH IS PARALLEL OR PERPENDICULAR TO A GIVEN LINE (4)	37.4
	PERCENT CORRECT ALL ITEMS (480)	62.6
	AVERAGE SCORE ALL ITEMS (480)	300.4
	NUMBER OF STUDENTS TESTED	43325

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS. OBJECTIVES 1.1, 1.2, 1.4, 1.8, 4.1, 4.7 AND 12.5 ARE NOT MEASURED DIRECTLY, BUT INCLUDE SKILLS THAT ARE TESTED IN OTHER OBJECTIVES. OBJECTIVE 5.6 IS TESTED WITH ACTUAL PROOFS. THE NUMBER OF ITEMS PER GOAL AND OBJECTIVE IS REPORTED IN PARENTHESES.

APPENDIX

Geometry Core and Goal Performance in Educational Regions and Public School Systems: Multiple Choice Test

Table 11 presents average performance on the 60-item core test, the 480-item curriculum test, and the goals of Geometry for the eight educational regions. Public school system average core and goal performance are given in Table 12. School systems are arranged by educational region.

Performance in Educational Regions and Public School Systems: Geometry Proofs

Table 13 presents the distribution of scores on the five proofs for the eight educational regions. Public school system performance on the proofs are presented in Table 14. School systems are arranged by educational region.

Geometry Box and Whisker Plots of Core Scores for Educational Regions and Public School Systems

Figure 7 displays the distributions of core scores for the eight educational regions using box and whisker plots. Public school system box and whisker plots are presented in Figures 8 through 15. See the interpretive legend in Figure 1 on page 5.

Geometry Core Performance, Participation Rates, Yield, and Effective Yield for Public School Systems: 1989

Table 15 presents public school system participation rates, yield, effective yield, performance on the equivalent 60-item core tests, performance on the proofs portion of the test, and proofs yield, for the Geometry End-of-Course Test administered in 1989. School systems are arranged by educational region. Comparisons among school systems should always be sensitive to the fact that the social and demographic factors which are strongly related to differences in achievement are not distributed evenly across the state. These factors influence the yield indices as well as performance. For example, school systems in high socio-economic areas should have both high participation and performance, resulting in high yield and effective yield indices. One appropriate comparison might be among school systems with similar socio-economic characteristics. Another would involve comparing yield and effective yield indices for a school system across time to look for changes in participation and performance.

Geometry Core Scores and Participation Rates in Public School Systems

Figures 16 though 24 graphically present Geometry core scores and participation rates (percent of class) for the public school systems. For each school system, the length of the bars representing the average core scores and class participation rates can be compared to the state averages for these measures (state averages are indicated by the vertical arrows). School systems for which both bars extend beyond the state averages have both higher than average participation in Geometry, and above average performance on the Geometry End-of-Course Test.

Geometry Proofs Scores and Participation Rates in Public School Systems

Figures 25 though 33 graphically present proof scores and participation rates (percent of class) for the public school systems. For each school system, the length of the bars representing the percentage of proofs scores 2.0 or above and class participation rates can be compared to the state averages for these measures (state averages are indicated by the vertical arrows). School systems for which both bars extend beyond the state averages have both higher than average participation in Geometry, and above average performance on the geometry proofs.

Characteristics of the Geometry Students in Public School Systems

Select characteristics of all students in public school systems and students taking Geometry are listed in Table 16. The percent of a class is an estimate of the percent of an entire cohort or class of students who will eventually take Geometry in their public school career. As shown in Table 1, in North Carolina it is estimated that 49.4 percent of a class of students will take Geometry before they graduate from high school. The ethnic distribution and parental education distribution within school systems and Geometry classes also varied by school system. Statewide, black students and students with less educated parents appear to be underrepresented in Geometry classes.

State Percentile Tables for 1989

Table 17 gives summary statistics, the score distributions, and state percentiles for the 1989 administration of the Geometry End-of-Course Tests. The 1989 percentiles provide a baseline to which subsequent performance on the equivalent core tests can be compared.

Table 11

1989 Regional Summary Results for Geometry: 60-Item Core Test and 480-Item Curriculum Test

STATE REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
NORTHEAST	2219	66.7	68.0	69.0	76.1	68.8	64.5	66.9	66.4	56.7	51.8	61.5	54.2	54.1	37.9	63.1	303.0	63.1
SOUTHEAST	4914	65.4	66.6	66.6	74.9	69.0	63.9	64.5	65.8	55.2	50.0	59.4	52.3	51.5	36.9	61.5	295.3	61.5
CENTRAL	7134	68.7	70.9	68.3	77.8	71.3	67.7	67.8	68.0	58.9	53.5	62.6	55.6	54.9	38.8	64.7	310.6	64.7
SOUTH CENTRAL	5144	62.8	65.3	62.4	71.6	64.0	60.3	60.7	61.9	52.3	45.4	57.0	47.6	48.9	34.9	58.1	279.0	58.1
NORTH CENTRAL	8103	68.0	69.6	67.1	77.0	69.5	66.2	66.1	67.2	57.1	52.2	61.3	53.9	53.5	38.0	63.4	304.2	63.4
SOUTHWEST	7915	65.8	67.8	63.6	74.7	68.3	64.6	63.5	65.4	55.0	50.1	59.9	52.5	52.1	36.8	61.3	294.4	61.3
NORTHWEST	4187	69.0	71.3	66.0	77.0	72.0	67.0	66.7	69.4	58.4	52.3	63.1	54.3	56.6	38.6	64.4	309.0	64.4
WESTERN	3709	68.9	71.2	66.8	77.8	73.4	67.2	67.4	69.2	58.2	53.3	63.1	55.5	56.2	38.8	64.7	310.5	64.7

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12

1989 School System Summary Results for Geometry: 60-Item Core Test and 480-Item Curriculum Test

REGION NORTHEAST

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
BEAUFORT COUNTY	131	59.4	63.4	67.5	67.8	65.8	55.6	60.3	61.5	52.2	43.8	55.2	45.3	47.4	34.0	56.7	272.4	56.8
WASHINGTON CITY	159	63.7	66.5	64.4	72.4	60.6	66.4	63.3	61.8	54.3	52.5	61.9	58.5	53.1	36.8	61.4	295.0	61.5
BERTIE COUNTY	127	61.9	59.1	68.6	72.9	57.1	60.1	63.7	64.6	50.0	39.8	56.7	42.7	45.6	34.4	57.4	276.3	57.6
CAMDEN COUNTY	28	81.4	77.4	73.3	89.3	91.7	81.2	75.6	83.3	71.4	63.5	71.6	70.2	63.4	44.6	74.3	363.7	75.8
CHOWAN COUNTY	106	71.1	69.1	71.4	80.6	75.1	68.2	69.7	72.2	56.5	54.0	63.4	64.7	59.6	40.1	66.8	320.8	66.8
CURRITUCK COUNTY	81	76.8	77.3	76.2	85.3	79.6	68.2	73.6	77.2	61.6	62.3	65.7	62.3	65.9	42.6	71.0	340.0	70.8
DARE COUNTY	123	76.5	81.7	76.0	82.9	85.0	78.1	78.9	77.9	70.2	62.8	72.1	64.3	77.6	45.0	75.0	360.1	75.0
GATES COUNTY	55	69.5	65.2	78.1	74.3	77.3	65.9	70.4	70.5	59.3	63.9	63.4	62.6	60.3	40.2	67.0	321.6	67.0
HERTFORD COUNTY	138	61.6	61.0	61.1	69.4	65.1	56.4	60.2	59.7	53.2	46.0	61.7	50.1	40.9	34.4	57.4	275.0	57.3
HYDE COUNTY	30	62.3	72.4	68.0	77.7	63.5	65.8	70.3	69.7	53.9	53.5	66.2	54.8	63.8	38.7	64.6	309.2	64.4
MARTIN COUNTY	229	63.2	64.4	68.7	73.6	62.4	59.8	62.1	64.0	55.7	47.9	58.8	51.4	51.6	36.2	60.3	289.0	60.2
PASQUOTANK COUNTY	229	65.0	66.5	67.0	73.6	69.4	63.9	64.8	63.2	53.9	47.7	59.7	44.5	48.5	36.1	60.2	288.6	60.1
PERQUIMANS COUNTY	64	68.1	77.2	81.9	83.6	72.3	71.4	69.1	73.2	61.2	58.9	67.2	55.3	57.6	41.0	68.3	327.5	68.2
PITT COUNTY	581	69.6	71.0	69.8	79.5	72.7	66.1	70.5	66.7	58.3	55.8	61.7	59.3	58.0	39.4	65.7	315.2	65.7
TYRRELL COUNTY	32	67.7	75.0	67.2	76.3	75.0	63.8	65.4	70.8	65.2	72.9	67.5	60.0	59.4	40.3	67.1	322.0	67.1
WASHINGTON COUNTY	106	58.5	58.8	60.7	70.0	49.0	58.8	60.3	60.9	49.0	34.1	55.8	38.3	32.9	32.3	53.9	258.2	53.8

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION SOUTHEAST

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
BRUNSWICK COUNTY	278	64.8	67.2	61.5	75.4	68.9	61.9	65.4	65.4	55.8	49.4	60.7	49.4	49.0	36.5	60.8	292.1	60.9
CARTERET COUNTY	293	70.6	71.2	73.3	76.7	74.5	67.6	68.2	67.0	59.2	60.6	63.1	62.7	63.7	40.1	66.8	320.6	66.8
NEW BERN-CRAVEN	579	67.5	66.9	67.4	76.5	72.5	65.6	67.2	69.0	56.6	55.4	62.1	56.0	59.9	38.5	64.2	308.4	64.3
DUPLIN COUNTY	272	60.6	59.0	67.0	72.2	59.5	59.6	59.7	63.1	51.9	44.2	54.0	49.9	48.2	34.6	57.7	276.8	57.7
GREENE COUNTY	92	65.2	66.0	78.5	75.0	71.5	65.3	64.6	68.4	55.6	49.1	62.8	52.2	52.4	37.8	63.0	302.3	63.0
JONES COUNTY	48	59.7	68.7	69.3	71.2	62.5	51.7	55.3	63.9	40.9	42.4	55.0	48.3	51.0	33.3	55.5	266.2	55.5
LENOIR COUNTY	282	64.2	64.0	64.6	71.6	69.3	61.6	61.6	61.9	51.9	47.7	58.8	52.1	50.3	35.6	59.3	285.0	59.4
KINSTON CITY	179	67.6	68.5	69.3	79.7	73.8	70.2	67.6	67.3	58.2	59.7	60.8	58.1	60.1	39.3	65.5	314.5	65.5
NEW HANOVER COUNT	891	66.8	69.0	66.4	75.9	72.6	67.5	67.1	69.8	59.2	54.5	62.9	56.4	51.6	38.5	64.2	308.1	64.2
ONSLOW COUNTY	622	68.1	66.3	64.1	76.2	68.1	63.5	65.5	65.7	54.2	45.0	57.4	51.0	54.2	36.8	61.3	294.3	61.3
PAMLICO COUNTY	75	67.4	72.0	73.0	79.5	66.3	61.3	68.0	62.2	62.2	56.3	64.0	64.6	46.3	39.3	65.4	311.7	64.9
PENDER COUNTY	175	58.7	66.2	70.3	69.1	61.8	57.0	56.8	57.0	48.0	39.1	54.3	47.7	50.4	33.5	55.8	268.3	55.9
SAMPSON COUNTY	218	61.3	63.8	63.0	72.8	59.6	62.1	60.5	62.9	49.1	41.7	52.2	36.9	39.0	33.4	55.6	267.0	55.6
CLINTON CITY	99	71.7	67.0	55.9	81.7	75.1	67.9	72.7	68.3	63.2	57.2	66.3	59.0	59.1	40.1	66.8	320.4	66.7
WAYNE COUNTY	605	63.5	67.3	68.6	75.7	68.3	65.2	62.7	65.6	54.6	48.4	58.5	46.8	43.1	36.1	60.1	288.7	60.2
GOLDSBORO CITY	206	56.8	59.8	62.2	64.6	64.5	52.1	56.3	57.6	47.7	38.8	51.2	46.6	40.7	31.9	53.2	255.1	53.2

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION CENTRAL

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
DURHAM COUNTY	832	69.9	71.9	65.7	79.6	74.1	69.5	71.2	71.1	61.3	57.3	65.5	60.2	54.7	40.1	66.8	320.7	66.8
DURHAM CITY	248	52.4	54.4	53.8	61.4	50.5	50.1	51.9	48.5	44.0	40.2	45.6	41.6	37.2	29.1	48.5	232.9	48.5
EDGECOMBE COUNTY	163	60.6	65.8	64.3	70.0	62.5	59.1	58.9	59.5	50.1	41.6	54.2	46.8	40.0	33.6	56.0	268.8	56.0
TARBORO CITY	114	66.3	67.1	69.0	73.3	67.7	65.4	63.8	60.3	54.3	51.8	60.8	54.2	53.3	36.8	61.4	295.7	61.6
FRANKLIN COUNTY	163	63.3	71.5	64.5	75.4	70.5	66.0	62.5	63.1	55.7	47.0	60.3	52.8	53.2	36.7	61.1	294.1	61.3
FRANKLINTON CITY	48	63.9	63.5	83.9	75.8	72.9	64.6	69.4	68.5	51.8	45.8	56.2	52.1	32.8	36.7	61.2	294.0	61.2
GRANVILLE COUNTY	220	65.3	64.6	67.2	72.5	58.6	63.7	62.2	56.2	51.7	40.3	55.6	45.9	50.9	34.9	58.2	279.5	58.2
HALIFAX COUNTY	188	50.1	54.9	58.0	61.6	47.3	49.0	55.4	55.1	42.8	34.5	46.7	36.3	34.6	29.1	48.4	232.5	48.4
ROANOKE RPDS CITY	155	72.9	73.0	68.9	83.1	75.7	71.9	75.1	71.6	62.3	59.0	66.1	61.7	45.3	40.9	68.1	327.3	68.2
WELDON CITY	57	43.7	46.9	48.2	53.9	38.7	41.9	46.9	44.9	36.4	25.7	37.9	34.4	25.4	24.4	40.7	196.1	40.9
JOHNSTON COUNTY	577	69.1	72.0	69.1	78.7	72.1	68.6	67.0	69.2	58.5	54.5	62.1	54.2	56.6	39.0	65.0	311.7	64.9
NASH COUNTY	481	66.8	69.9	65.9	76.7	69.7	68.6	66.8	67.9	59.3	56.2	65.5	55.1	50.5	38.5	64.2	308.4	64.2
ROCKY MOUNT CITY	158	67.9	74.7	74.1	81.2	73.8	68.9	68.7	67.8	60.6	58.5	61.7	54.9	62.4	39.9	66.5	319.3	66.5
NORTHAMPTON COUNT	146	52.1	57.4	51.0	60.5	50.8	52.1	49.9	49.3	40.7	35.9	45.6	39.8	37.7	28.5	47.5	228.2	47.5
VANCE COUNTY	236	61.7	62.8	69.2	71.5	58.2	55.1	58.4	62.9	47.6	36.6	51.3	41.3	39.2	33.0	54.9	263.6	54.9
WAKE COUNTY	2820	74.6	75.8	71.9	82.7	78.1	73.6	72.5	73.6	64.4	59.7	67.7	61.6	63.4	42.1	70.2	337.3	70.3
WARREN COUNTY	101	63.5	70.7	56.4	67.7	70.2	52.6	56.5	59.0	50.7	39.4	55.4	44.3	42.1	33.0	55.0	264.0	55.0
WILSON COUNTY	427	67.5	69.9	74.0	78.1	70.2	65.8	70.5	68.1	59.6	51.4	62.6	53.4	55.0	39.0	64.9	311.7	64.9

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION SOUTH CENTRAL

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
BLADEN COUNTY	245	60.7	60.4	64.8	70.1	56.7	56.5	58.6	56.9	47.4	39.5	51.7	39.9	44.6	32.7	54.4	261.1	54.4
COLUMBUS COUNTY	217	62.3	60.8	65.4	72.9	65.0	58.5	62.1	63.9	55.4	44.7	54.3	48.7	50.0	35.2	58.7	281.9	58.7
WHITEVILLE CITY	118	62.0	64.3	57.3	71.7	63.8	58.2	63.3	60.7	52.2	47.4	52.6	52.4	49.3	34.7	57.8	277.8	57.9
CUMBERLAND COUNTY	2003	63.6	67.0	61.3	71.6	64.8	61.8	60.7	61.5	52.8	47.0	57.8	48.3	48.4	35.1	58.5	281.0	58.5
HARNETT COUNTY	335	63.3	65.7	62.2	71.5	69.2	57.3	60.5	60.0	51.2	41.6	53.7	43.8	47.4	34.1	56.8	272.8	56.8
HOKE COUNTY	123	64.8	64.2	65.6	74.9	69.4	64.7	65.3	66.6	56.8	49.4	58.9	52.6	56.4	37.3	62.1	297.8	62.0
LEE COUNTY	287	64.3	66.1	64.4	72.7	66.2	62.0	63.7	63.5	53.2	47.6	57.5	47.0	52.2	35.8	59.6	286.3	59.6
MONTGOMERY COUNTY	227	63.0	67.6	63.9	75.1	65.6	64.8	65.3	66.2	56.0	49.0	60.2	46.7	51.0	36.5	60.9	292.4	60.9
MOORE COUNTY	328	65.9	70.1	66.2	76.1	72.5	66.1	64.2	68.3	57.6	48.0	63.2	52.6	55.7	37.8	63.0	302.3	63.0
RICHMOND COUNTY	331	59.2	62.2	60.4	68.3	57.5	54.0	56.1	59.7	47.5	43.8	57.3	48.7	52.6	33.4	55.6	266.5	55.5
ROBESON COUNTY	351	58.0	58.3	60.5	64.1	56.1	54.8	56.2	57.1	47.4	40.8	53.2	42.8	42.1	32.0	53.3	254.9	53.1
FAIRMONT CITY	63	57.0	62.1	64.3	71.3	55.4	52.1	59.6	52.8	49.6	39.3	53.6	45.0	44.1	32.7	54.4	261.1	54.4
LUMBERTON CITY	189	59.9	63.3	59.5	70.9	59.6	60.9	57.9	61.8	48.4	37.7	55.8	44.0	40.1	33.2	55.3	265.2	55.2
RED SPRINGS	74	54.2	55.7	62.1	64.5	39.7	54.0	51.1	52.5	42.8	40.0	43.8	39.3	37.2	29.7	49.5	237.1	49.4
SAINT PAULS CITY	40	67.1	73.7	74.4	77.5	70.0	66.0	63.3	72.8	55.6	55.0	62.0	59.5	68.1	39.3	65.5	314.2	65.5
SCOTLAND COUNTY	213	68.4	71.2	63.7	76.2	71.1	60.8	64.0	68.9	58.7	47.7	61.4	52.9	52.7	37.5	62.4	299.9	62.5

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION NORTH CENTRAL

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
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7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
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9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
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12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
ALAMANCE COUNTY	428	68.2	68.2	60.0	75.8	68.1	64.3	64.1	63.1	53.7	52.9	60.4	51.2	51.3	36.7	61.2	293.6	61.2
BURLINGTON CITY	305	70.5	69.0	66.2	78.4	71.2	68.0	70.5	65.2	61.3	60.9	64.5	59.7	59.4	39.8	66.4	318.6	66.4
CASWELL COUNTY	149	56.1	62.1	66.3	62.8	53.2	54.2	52.9	57.5	46.6	37.1	56.1	47.1	45.4	32.0	53.4	256.2	53.4
CHATHAM COUNTY	190	69.1	71.0	72.2	79.6	74.9	69.4	69.2	69.0	59.1	57.2	66.2	56.6	58.6	39.9	66.4	319.0	66.4
DAVIDSON COUNTY	717	65.2	66.1	63.1	73.5	64.4	61.9	61.4	63.7	53.2	44.7	57.1	46.3	47.3	35.3	58.8	282.4	58.8
LEXINGTON CITY	120	59.4	62.0	59.0	67.9	53.3	53.6	57.1	61.6	44.8	40.7	52.0	42.2	49.2	32.3	53.8	258.4	53.8
THOMASVILLE CITY	100	61.4	68.1	70.5	73.6	66.3	61.7	57.6	65.0	54.6	50.6	57.0	49.1	48.1	35.8	59.7	285.2	59.4
FORSYTH COUNTY	1598	69.0	70.6	67.9	78.0	66.4	66.7	68.0	69.4	58.6	53.3	61.8	53.6	55.4	38.7	64.4	309.3	64.4
GUILFORD COUNTY	1083	72.5	72.6	68.5	80.8	75.5	69.6	69.2	71.7	60.1	56.8	64.7	61.2	55.5	40.3	67.1	322.1	67.1
GREENSBORO CITY	1056	64.8	68.2	66.9	75.4	70.0	66.6	64.5	64.2	56.8	49.5	59.0	52.4	45.5	36.9	61.4	295.0	61.5
HIGH POINT CITY	269	69.3	68.9	74.3	78.8	71.6	69.2	70.7	66.9	59.0	58.8	62.4	58.1	57.4	40.1	66.8	318.0	66.3
ORANGE COUNTY	238	64.4	65.8	61.0	72.4	65.2	60.9	58.2	63.3	48.9	44.9	56.3	46.6	52.6	34.6	57.7	277.3	57.8
CHAPEL HILL CITY	300	80.0	86.1	74.6	89.2	86.1	78.8	81.7	80.5	70.8	68.4	74.6	71.8	69.1	46.2	77.0	370.5	77.2
PERSON COUNTY	195	67.5	70.9	67.3	78.6	68.4	67.0	69.7	67.3	58.3	52.2	58.9	60.0	63.3	39.1	65.1	312.6	65.1
RANDOLPH COUNTY	399	68.3	68.1	68.4	74.9	70.1	62.3	62.2	66.4	53.1	50.5	62.1	50.5	54.9	37.0	61.7	296.0	61.7
ASHEBORO CITY	165	68.1	67.6	65.1	73.6	67.9	59.3	62.6	63.0	52.0	46.7	58.2	57.2	56.1	36.4	60.7	291.8	60.8
ROCKINGHAM COUNTY	121	67.0	67.7	72.4	78.2	69.3	70.6	65.2	68.8	57.3	38.3	59.8	42.6	51.6	37.3	62.2	298.5	62.2
EDEN CITY	167	72.7	71.0	75.4	82.1	79.1	73.9	71.7	74.3	61.7	59.4	64.1	59.8	68.7	41.8	69.6	334.2	69.6
WEST. ROCKINGHAM	142	62.9	61.2	59.0	74.0	66.3	64.0	62.4	63.4	55.2	52.1	58.1	53.5	53.6	36.1	60.2	289.3	60.3
REIDSVILLE CITY	137	65.0	66.5	66.0	73.4	63.1	59.7	57.7	58.8	54.7	46.7	54.7	44.4	48.8	34.8	58.1	278.5	58.0
STOKES COUNTY	224	62.9	69.5	64.9	76.3	71.2	66.0	65.6	65.4	55.4	50.7	61.7	45.2	43.8	36.5	60.9	292.0	60.8

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION SOUTHWEST

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
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4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
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	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
ANSON COUNTY	190	52.8	55.9	54.3	64.2	50.1	52.0	51.5	54.8	45.6	36.9	51.7	44.1	35.2	30.1	50.1	240.4	50.1
CABARRUS COUNTY	620	66.4	70.4	65.2	76.4	71.0	68.5	65.4	67.9	56.2	51.6	64.1	53.8	52.4	38.0	63.3	303.6	63.2
KANNAPOLIS CITY	214	62.9	54.8	59.7	69.6	56.6	55.3	56.4	58.1	43.2	33.3	45.1	41.3	44.2	31.5	52.4	251.7	52.4
CLEVELAND COUNTY	284	66.8	70.0	65.6	75.9	69.8	63.9	63.3	63.5	55.8	46.7	58.5	49.4	51.5	36.6	61.0	293.1	61.1
KINGS MTN. CITY	105	65.2	68.2	69.3	75.0	72.6	65.3	63.9	68.5	57.8	53.5	61.3	53.3	60.1	38.0	63.3	304.2	63.4
SHELBY CITY	153	66.1	66.4	71.6	78.5	60.3	61.2	64.1	69.6	55.8	45.9	56.1	48.7	45.3	36.5	60.9	292.6	61.0
GASTON COUNTY	1226	61.9	64.4	60.7	72.7	65.8	61.0	59.8	63.0	52.0	46.2	55.6	47.1	45.5	34.6	57.7	276.8	57.7
LINCOLN COUNTY	366	65.5	68.4	59.4	74.0	67.6	63.4	62.1	63.2	54.6	49.7	58.9	48.3	47.8	35.8	59.7	286.8	59.7
MECKLENBURG COUNT	3205	66.9	69.9	64.9	75.2	70.0	65.7	64.8	66.6	56.2	53.2	60.9	55.7	55.3	37.7	62.9	301.9	62.9
ROWAN COUNTY	479	65.4	64.6	60.7	73.8	65.1	65.2	63.7	63.8	53.9	48.6	62.2	53.3	49.1	36.4	60.7	291.2	60.7
SALISBURY CITY	84	67.6	63.5	63.2	71.5	58.3	66.7	68.2	67.2	56.8	54.3	60.1	55.3	64.2	38.0	63.4	304.0	63.3
STANLY COUNTY	305	64.3	63.8	56.6	71.1	63.6	61.3	60.5	58.9	49.7	47.3	59.6	50.2	48.2	34.7	57.8	277.2	57.7
ALBEMARLE CITY	88	77.4	74.6	76.1	81.9	81.6	75.7	71.7	74.7	62.8	63.1	70.5	61.6	67.7	42.9	71.5	342.8	71.4
UNION COUNTY	489	71.7	73.0	67.8	80.3	76.8	71.4	69.0	71.9	61.4	52.2	66.1	54.3	59.7	40.1	66.8	320.9	66.9
MONROE CITY	107	68.7	70.0	67.8	78.5	73.8	63.5	66.7	70.1	62.7	57.2	65.4	62.0	59.1	39.6	66.1	317.6	66.2

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION NORTHWEST

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
5: RECOGNIZE PERPENDICULAR LINES & PLANES & USE THIS INFORMATION TO COMPLETE PROOFS & EXERCISES
6: RECOGNIZE PARALLEL LINES & PLANES & USE THIS KNOWLEDGE TO COMPLETE PROOFS & EXERCISES
7: IDENTIFY POLYGONS & COMPLETE PROOFS & EXERCISES RELATED TO THEM
8: IDENTIFY CONGRUENT TRIANGLES & COMPLETE PROOFS & EXERCISES RELATED TO THEM
9: DEMONSTRATE WHEN TWO POLYGONS ARE SIMILAR & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
10: STATE SOME OF THE CHARACTERISTICS OF A RIGHT TRIANGLE & SOLVE EXERCISES RELATED TO THEM
11: LIST SOME CHARACTERISTICS OF A CIRCLE & DEVELOP PROOFS & SOLVE EXERCISES RELATED TO THEM
12: FIND THE PERIMETER, AREA, & VOLUME OF GEOMETRIC FIGURES
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
ALEXANDER COUNTY	219	67.0	65.6	63.0	75.0	64.5	63.7	63.1	62.5	55.3	42.9	59.5	44.9	45.7	35.7	59.6	285.8	59.5
ALLEGHANY COUNTY	85	60.8	63.6	58.5	68.2	64.9	54.5	61.0	66.4	45.5	41.2	53.8	53.4	48.5	33.8	56.3	270.3	56.3
ASHE COUNTY	130	74.0	77.6	71.8	83.0	81.4	75.2	72.7	72.3	66.5	62.0	71.6	54.4	63.7	42.3	70.5	338.5	70.5
AVERY COUNTY	112	61.4	64.3	59.6	67.6	58.4	55.5	54.7	61.4	46.9	40.5	52.8	49.2	53.9	33.2	55.3	265.6	55.3
BURKE COUNTY	429	66.6	69.5	63.7	78.6	72.5	68.9	66.9	69.7	58.3	55.1	63.3	55.7	61.4	38.9	64.9	311.4	64.9
CALDWELL COUNTY	415	69.0	73.0	60.5	76.1	71.0	64.5	62.6	68.5	56.2	49.5	62.7	53.4	55.9	37.5	62.5	300.4	62.6
CATAWBA COUNTY	394	78.3	79.2	72.1	84.5	81.9	75.2	75.4	79.2	71.2	63.4	72.1	68.4	71.7	44.7	74.5	357.4	74.5
HICKORY CITY	228	69.9	73.7	66.2	80.9	80.6	74.2	71.8	73.2	63.5	61.1	68.3	60.6	67.0	41.5	69.2	332.8	69.3
NEWTON CITY	115	70.4	73.7	63.0	82.2	77.5	66.5	67.0	71.0	58.7	48.9	56.9	52.5	54.7	38.4	64.1	307.7	64.1
DAVIE COUNTY	210	73.1	71.3	71.2	77.8	71.2	69.6	66.7	72.5	58.8	52.3	61.3	56.2	51.0	39.3	65.4	313.6	65.3
IREDELL COUNTY	478	65.8	71.0	65.7	74.1	70.1	66.0	64.5	66.3	53.1	51.6	60.6	51.9	45.6	36.7	61.2	294.1	61.3
MOORESVILLE CITY	82	75.5	78.1	77.9	84.2	82.9	81.8	78.9	78.1	73.8	63.0	73.4	61.1	65.1	44.9	74.8	359.1	74.8
STATESVILLE CITY	132	64.1	58.7	59.3	73.1	64.6	65.7	65.6	63.3	55.0	44.5	55.6	45.8	44.8	35.4	59.0	282.7	58.9
SURRY COUNTY	321	71.2	74.5	70.0	79.4	76.4	68.2	69.6	71.8	59.8	52.3	64.4	51.4	60.0	39.7	66.2	317.6	66.2
ELKIN CITY	58	63.2	69.9	57.9	67.5	56.7	60.4	56.9	60.2	48.9	49.9	60.0	53.7	55.2	34.9	58.1	277.9	57.9
MOUNT AIRY CITY	74	72.8	82.1	80.7	71.9	66.5	63.7	67.7	69.1	70.2	54.7	68.9	60.7	65.7	41.4	69.0	329.9	68.7
WATAUGA COUNTY	166	73.0	77.0	69.2	81.3	75.0	70.8	71.8	74.5	64.7	63.2	68.2	63.6	66.0	42.1	70.1	336.6	70.1
WILKES COUNTY	364	62.5	63.0	61.2	69.3	63.0	55.6	59.7	62.7	49.2	40.4	56.3	42.8	46.3	33.6	56.0	268.7	56.0
YADKIN COUNTY	175	70.6	69.8	68.7	76.0	71.6	67.5	67.3	69.1	58.7	51.5	66.6	55.0	58.5	39.0	65.0	312.7	65.1

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Table 12, cont'd.

REGION WESTERN

REGION REPORT

GOALS: THE LEARNER WILL

1: STATE THE CHARACTERISTICS OF SETS OF POINTS
2: USE THE STRUCTURAL PROPERTIES OF THE REAL NUMBER
3: DEVELOP GEOMETRIC PROOFS
4: USE SOME OF THE PROPERTIES OF ANGLES & LINES TO DEVELOP PROOFS & SOLVE EXERCISES
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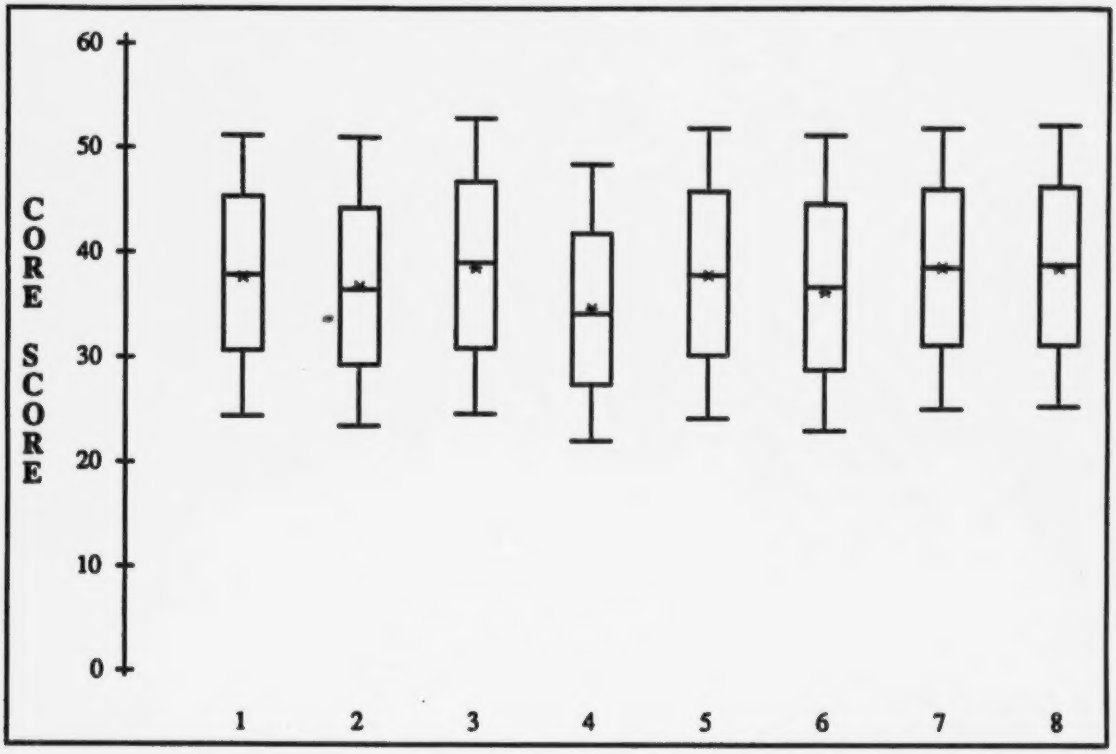
14: INVESTIGATE SOME OF THE PROPERTIES OF COORDINATE GEOMETRY

	NUMBER TESTED	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	GOAL 6	GOAL 7	GOAL 8	GOAL 9	GOAL 10	GOAL 11	GOAL 12	GOAL 14	AVG CORE	PCT CORE	AVG ALL ITEMS	PCT ALL ITEMS
NUMBER OF ITEMS		48	16	32	40	8	40	60	36	64	24	40	40	32	60	60	480	480
BUNCOMBE COUNTY	992	69.9	73.4	69.6	80.0	77.3	70.6	70.7	72.2	61.7	57.1	66.3	59.7	58.8	40.6	67.7	324.8	67.7
ASHEVILLE CITY	175	66.2	67.8	66.3	74.9	70.2	66.6	66.9	68.9	57.6	53.1	60.3	54.0	55.4	38.0	63.4	304.1	63.4
CHEROKEE COUNTY	165	70.2	67.5	68.0	79.7	67.6	62.4	66.8	65.4	55.7	46.3	60.0	51.4	57.4	37.7	62.9	301.8	62.9
CLAY COUNTY	61	65.9	63.2	61.9	65.2	61.7	58.5	51.6	54.9	44.3	35.5	51.4	46.8	49.4	32.3	53.8	258.6	53.9
GRAHAM COUNTY	47	65.8	71.4	65.3	71.2	72.9	69.4	63.0	67.2	57.4	58.6	64.1	58.9	62.1	38.0	63.3	307.8	64.1
HAYWOOD COUNTY	345	66.4	66.3	65.3	76.7	71.2	64.3	63.2	65.7	55.5	49.5	59.7	55.7	46.2	36.9	61.5	295.4	61.5
HENDERSON COUNTY	316	72.2	73.2	62.9	81.8	78.0	72.0	71.0	72.3	61.6	62.3	67.6	61.3	61.9	41.1	68.5	328.6	68.5
HENDRSNVLLE CITY	106	72.7	75.2	74.1	78.7	73.4	66.4	69.7	74.9	64.8	55.2	70.5	64.1	64.5	41.6	69.3	332.5	69.3
JACKSON COUNTY	129	68.9	71.2	64.1	79.4	76.2	63.5	66.8	72.3	55.6	48.7	61.9	55.1	53.0	38.2	63.6	305.4	63.6
MACON COUNTY	136	70.1	65.5	60.8	76.3	74.8	66.8	65.8	70.8	56.3	53.1	61.3	60.6	57.3	38.4	64.1	307.6	64.1
MADISON COUNTY	73	72.7	74.2	73.0	76.5	71.2	67.7	65.2	73.6	59.9	51.8	64.4	57.4	60.0	39.7	66.2	317.7	66.2
MCDOWELL COUNTY	313	66.0	70.2	66.3	72.6	70.8	60.3	63.0	64.1	49.8	46.7	55.8	44.9	51.6	35.5	59.2	283.7	59.1
MITCHELL COUNTY	92	63.6	67.9	62.0	74.6	72.4	67.7	61.2	68.8	51.3	46.1	57.0	45.5	54.5	35.9	59.8	287.8	60.0
POLK COUNTY	70	64.8	67.5	70.7	75.2	67.3	66.9	63.2	71.7	53.6	48.3	63.0	46.5	51.7	37.1	61.9	296.7	61.8
RUTHERFORD COUNTY	303	65.6	70.1	63.6	75.9	65.2	63.4	65.6	64.0	55.6	49.5	61.3	49.1	59.0	37.1	61.8	296.9	61.8
SWAIN COUNTY	101	68.7	71.2	58.7	74.0	77.3	65.2	65.3	62.0	54.4	44.4	58.5	46.1	52.2	36.3	60.6	290.6	60.5
TRANSYLVANIA COUN	223	72.8	77.4	70.3	81.1	74.9	73.0	72.7	73.0	66.4	60.7	68.5	60.6	53.6	41.7	69.5	333.2	69.4
YANCEY COUNTY	62	73.3	85.2	72.4	83.3	78.6	71.9	74.4	72.1	66.6	62.1	69.6	57.5	60.6	42.4	70.7	338.7	70.6

NOTE: THE NUMBER OF ITEMS MEASURING EACH GOAL WILL VARY ACROSS YEARS. THE NUMBER OF ITEMS IN EACH GOAL AREA IS PROPORTIONAL TO THE NUMBER OF OBJECTIVES FOR THE GOAL. EIGHT FORMS OF A 60-ITEM TEST WERE ADMINISTERED IN EVERY CLASSROOM, FOR A TOTAL OF 480 ITEMS.

Figure 7. Distributions of Geometry Core Scores by Regions -- 1989

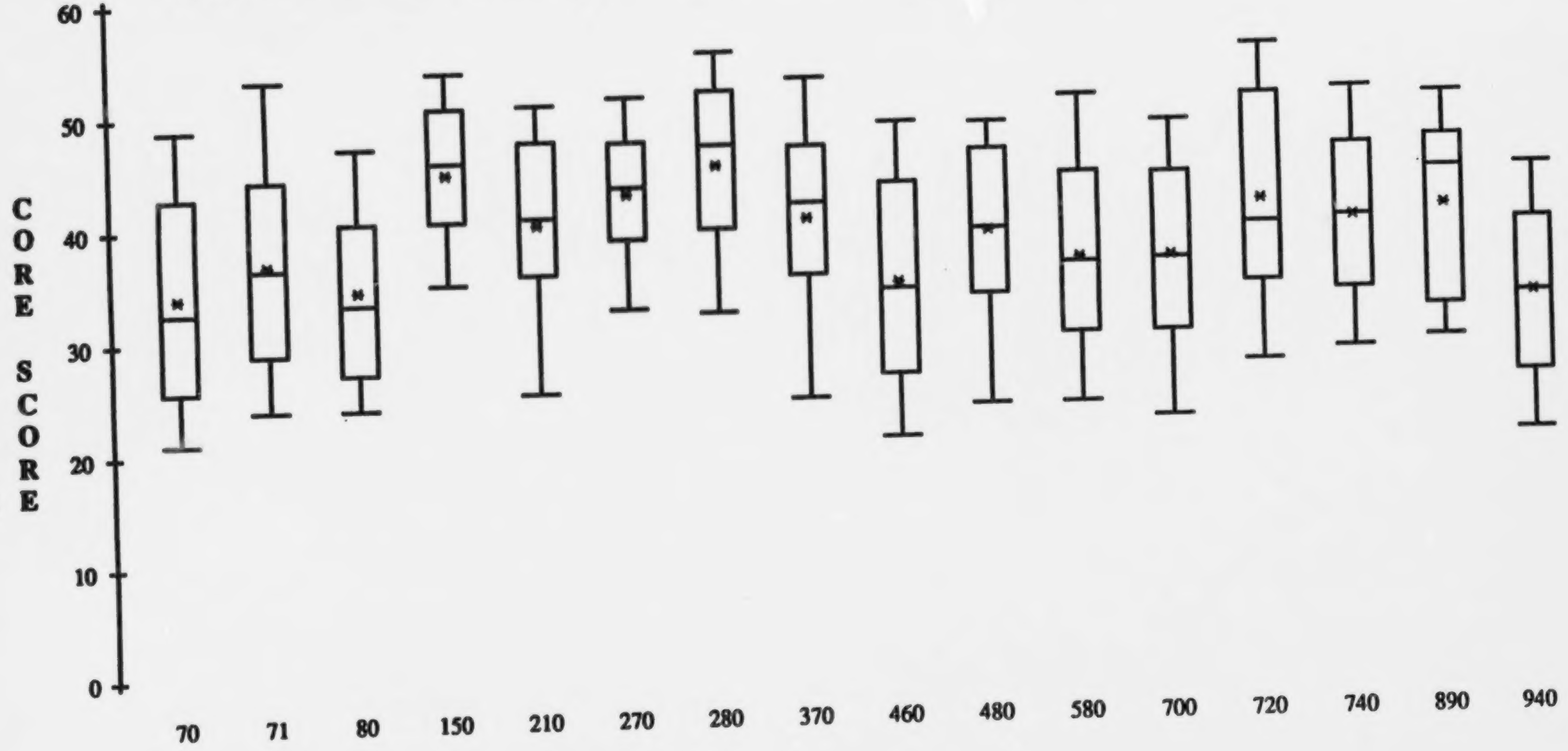


Regions :

1 Northeast
2 Southeast
3 Central
4 South Central

5 North Central
6 Southwest
7 Northwest
8 Western

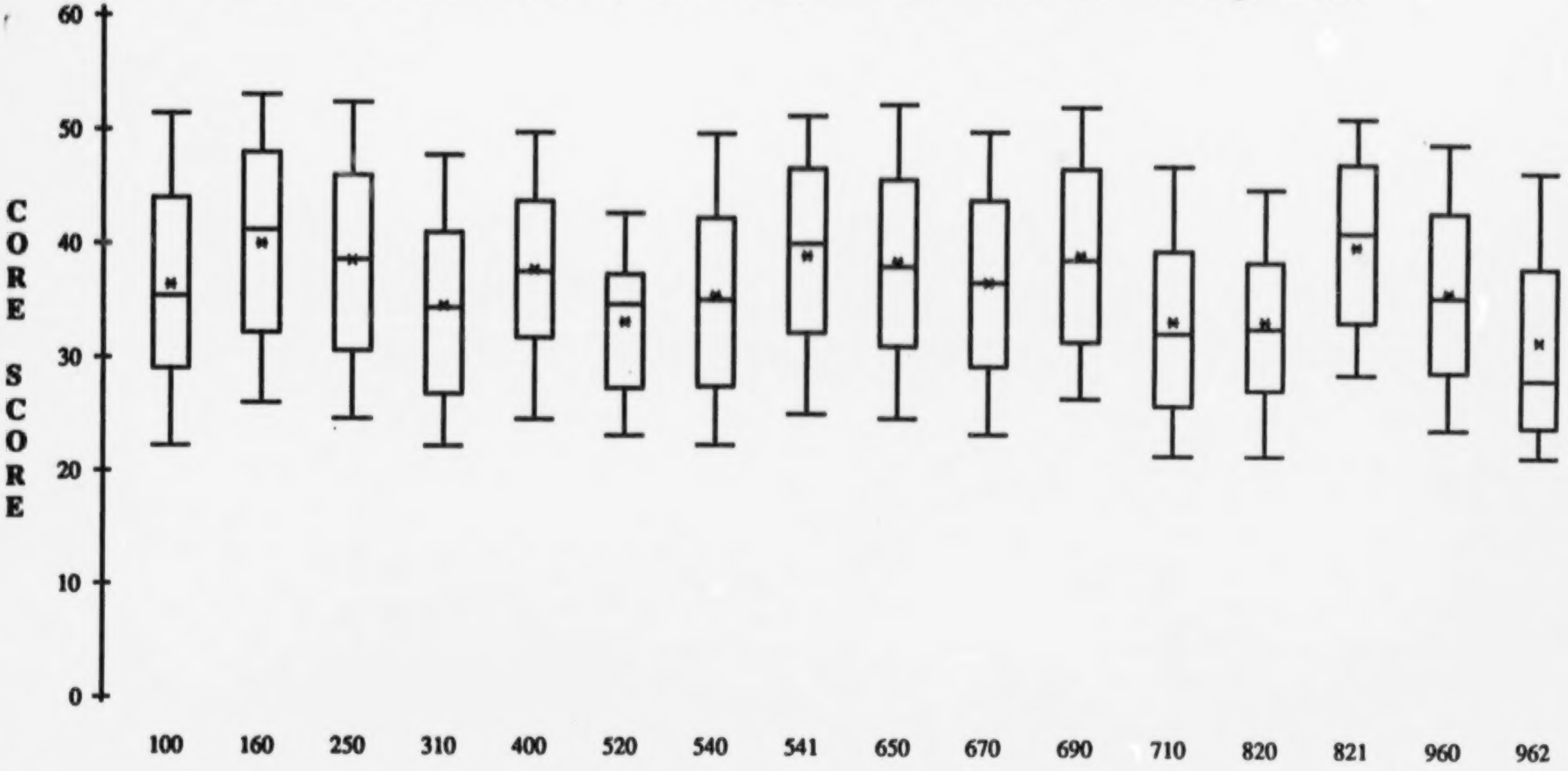
Figure 8. Distributions of Geometry Core Scores by School Systems in the Northeast Region -- 1989



Northeast Region School Systems:

70	Beaufort Co.
71	Washington City
80	Bertie Co.
150	Camden Co.
210	Chowan Co.
270	Currituck Co.
280	Dare Co.
370	Gates Co.
460	Hertford Co.
480	Hyde Co.
580	Martin Co.
700	Pasquotank Co.
720	Perquimans Co.
740	Pitt Co.
890	Tyrrell Co.
940	Washington Co.

Figure 9. Distributions of Geometry Core Scores by School Systems in the Southeast Region -- 1989



Southeast Region School Systems:

100	Brunswick Co.
160	Carteret Co.
250	Craven Co.
310	Duplin Co.
400	Greene Co.
520	Jones Co.
540	Lenoir Co.
541	Kinston City
650	New Hanover Co.
670	Onslow Co.
690	Pamlico Co.
710	Pender Co.
820	Sampson Co.
821	Clinton City
960	Wayne Co.
962	Goldsboro City

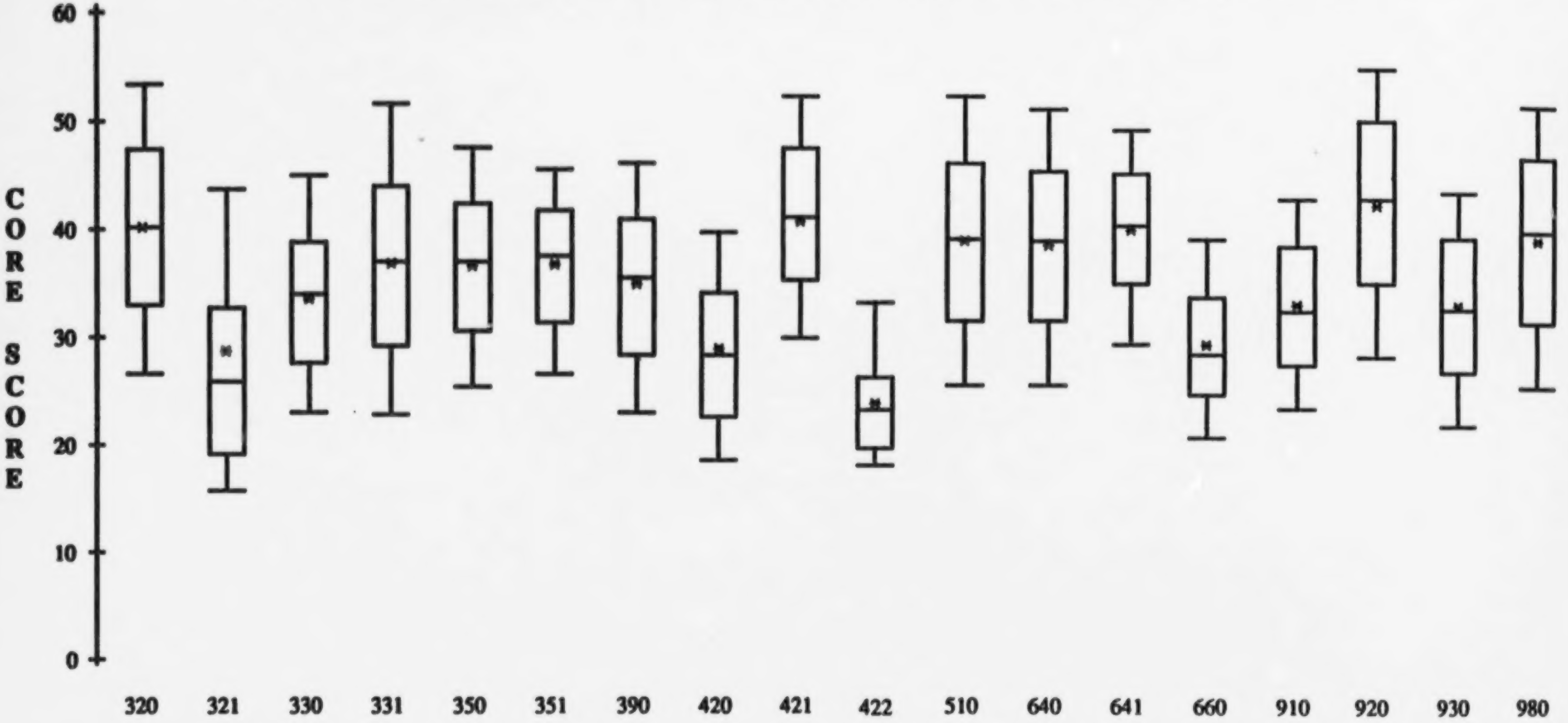
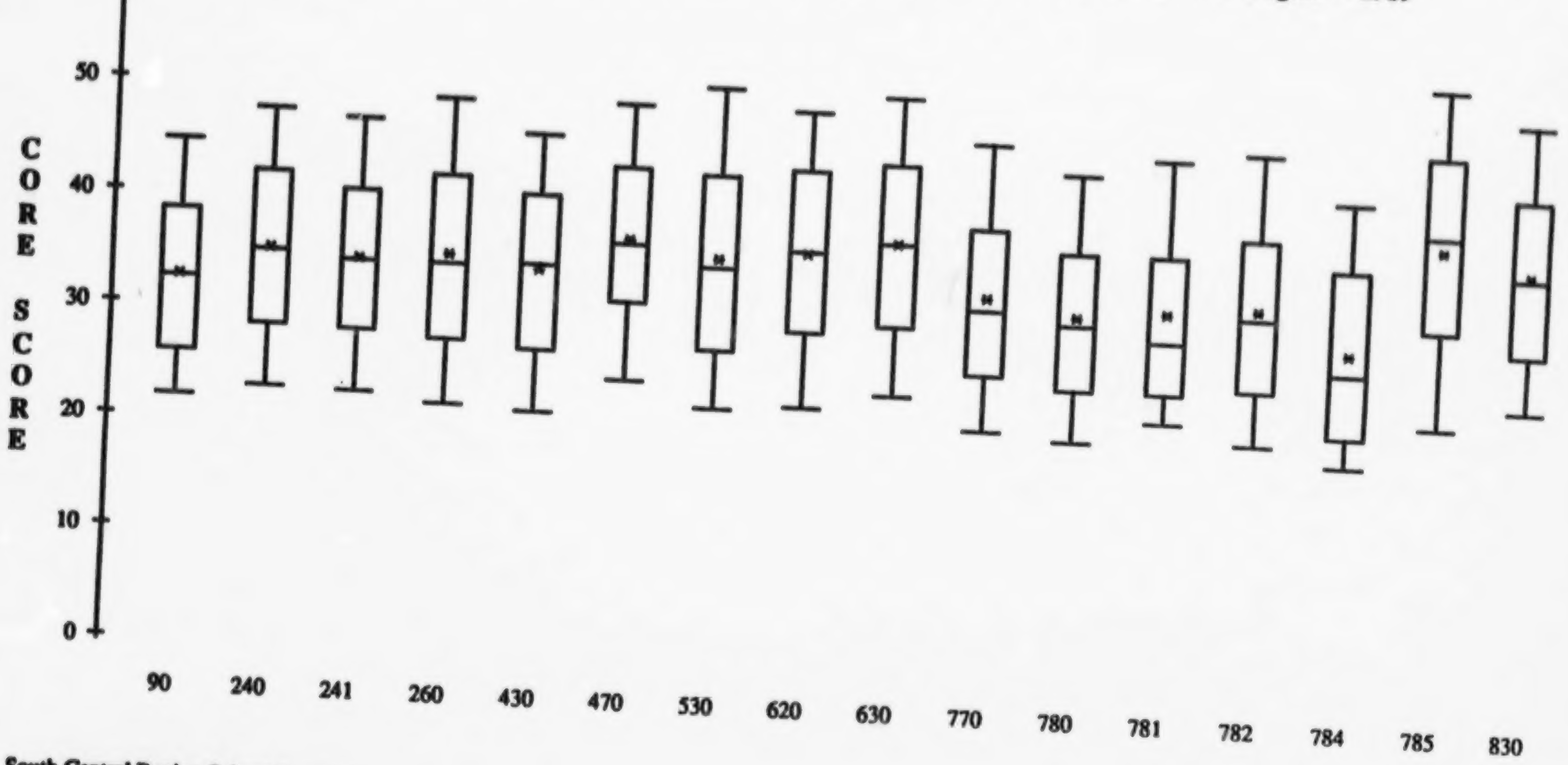


Figure 10. Distributions of Geometry Core Scores by School Systems in the Central Region -- 1989

Central Region School Systems:

320	Durham Co.
321	Durham City
330	Edgecombe Co.
331	Tarboro City
350	Franklin Co.
351	Franklinton City
390	Granville Co.
420	Halifax Co.
421	Roanoke Rapids City
422	Weldon City
510	Johnston Co.
640	Nash Co.
641	Rocky Mount City
660	Northampton Co.
910	Vance Co.
920	Wake Co.
930	Warren Co.
980	Wilson Co.

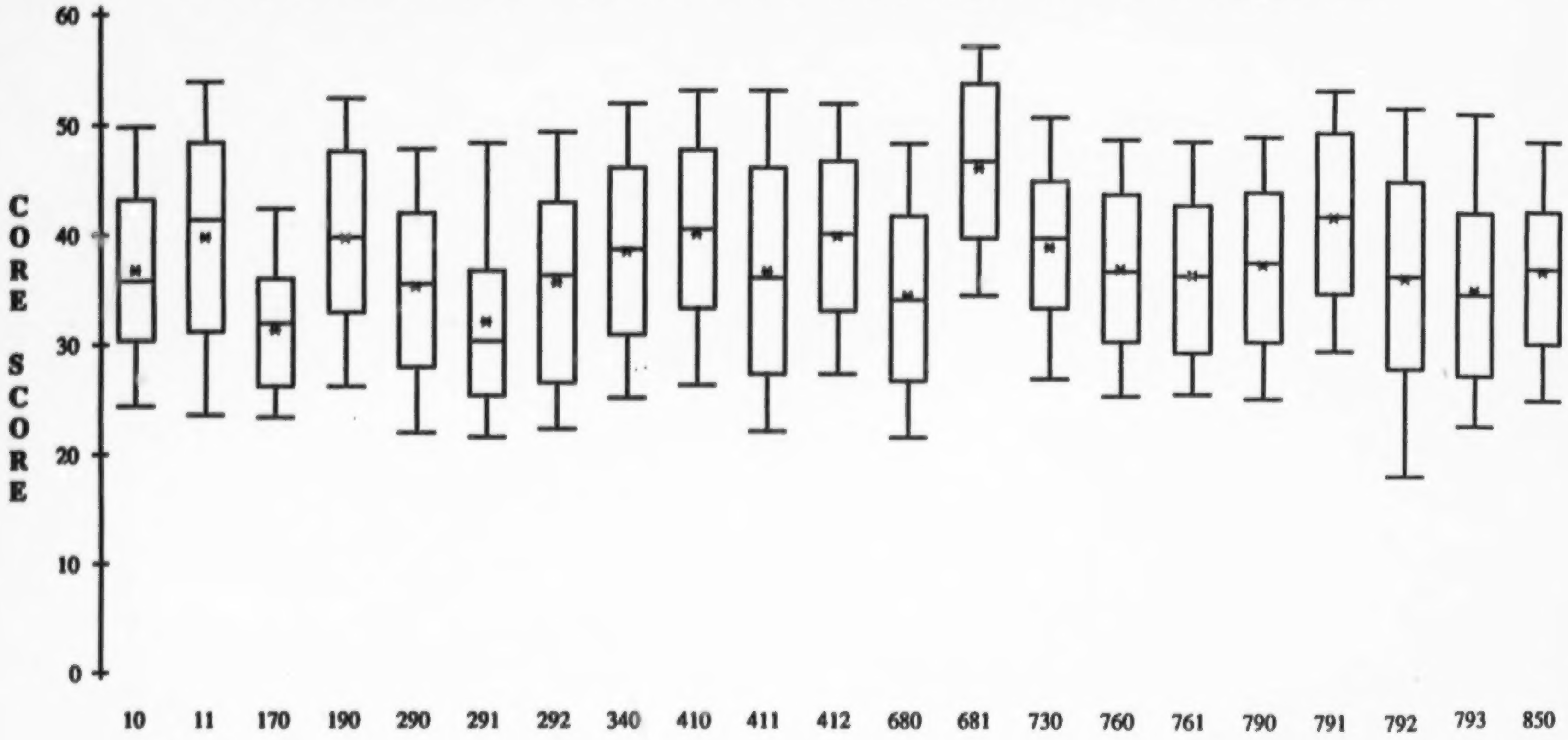
Figure 11. Distributions of Geometry Core Scores by School Systems in the South Central Region -- 1989



South Central Region School Systems:

90	Bladen Co.
240	Columbus Co.
241	Whiteville City
260	Cumberland Co.
430	Harnett Co.
470	Hoke Co.
530	Lee Co.
620	Montgomery Co.
630	Moore Co.
770	Richmond Co.
780	Robeson Co.
781	Fairmont City
782	Lumberton City
784	Red Springs City
785	St. Pauls City
830	Scotland Co.

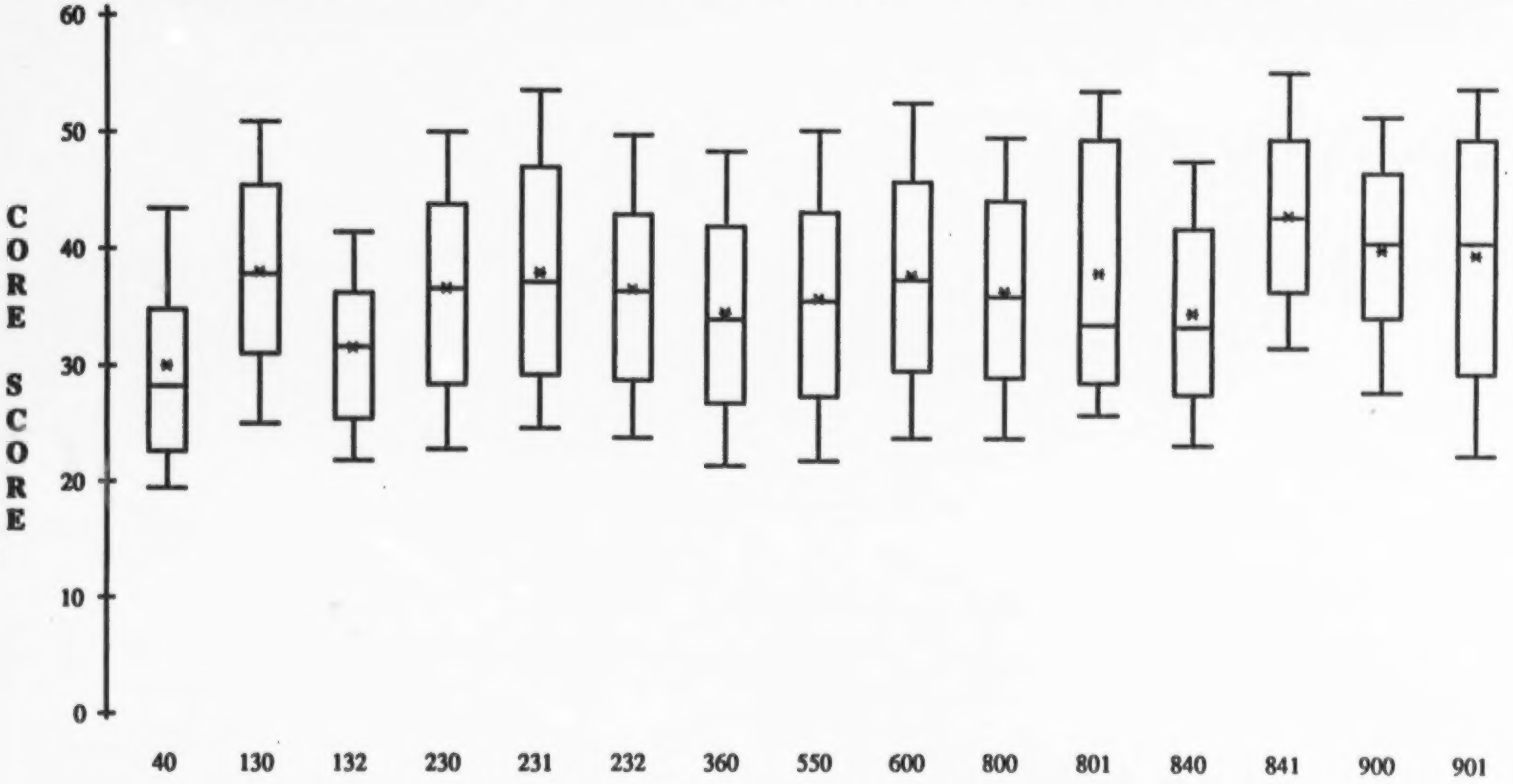
Figure 12. Distributions of Geometry Core Scores by School Systems in the North Central Region -- 1989



North Central Region School Systems:

10	Alamance Co.
11	Burlington City
170	Caswell Co.
190	Chatham Co.
290	Davidson Co.
291	Lexington City
292	Thomasville City
340	Forsyth Co.
410	Guilford Co.
411	Greensboro City
412	High Point City
680	Orange Co.
681	Chapel Hill City
730	Person Co.
760	Randolph Co.
761	Asheboro City
790	Rockingham Co.
791	Eden City
792	Western Rockingham City
793	Reidsville City
850	Stokes Co.

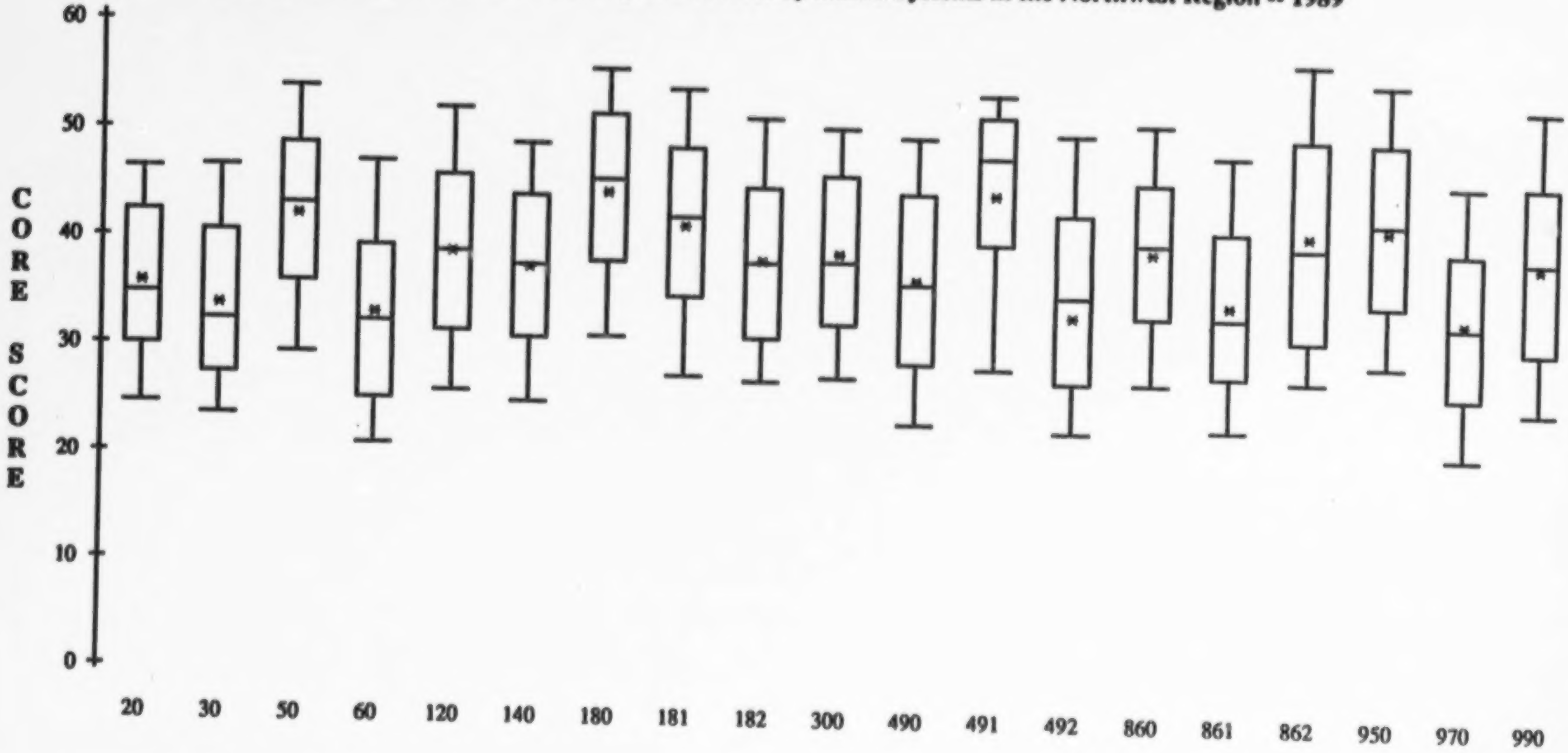
Figure 13. Distributions of Geometry Core Scores by School Systems in the Southwest Region -- 1989



Southwest Region School Systems:

40	Anson Co.
130	Cabarrus Co.
132	Kannapolis City
230	Cleveland Co.
231	Kings Mountain City
232	Shelby City
360	Gaston Co.
550	Lincoln Co.
600	Mecklenburg Co.
800	Rowan Co.
801	Salisbury City
840	Stanley Co.
841	Albemarle City
900	Union Co.
901	Monroe City

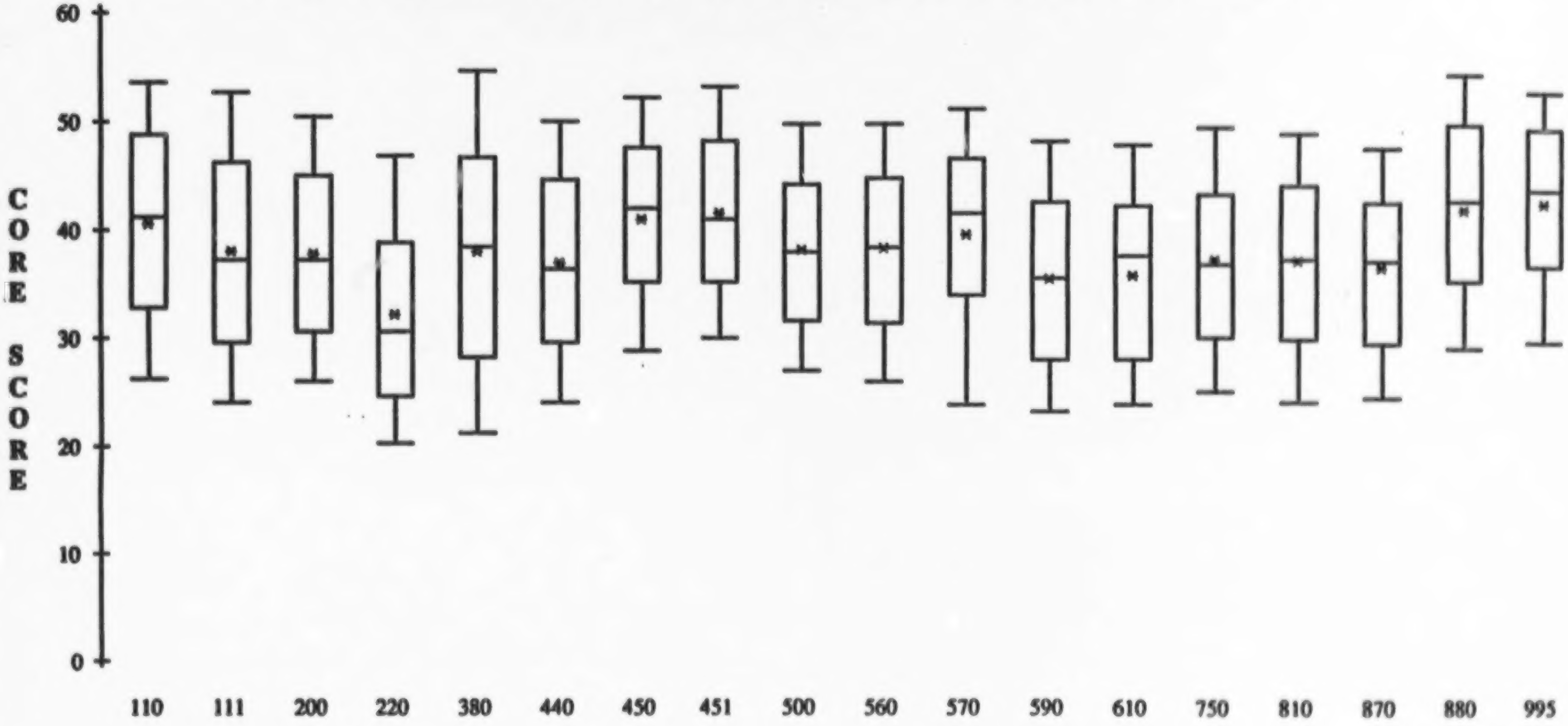
Figure 14. Distributions of Geometry Core Scores by School Systems in the Northwest Region -- 1989



Northwest Region School Systems:

20	Alexander Co.
30	Alleghany Co.
50	Ashe Co.
60	Avery Co.
120	Burke Co.
140	Caldwell Co.
180	Catawba Co.
181	Hickory City
182	Newton-Conover City
300	Davie Co.
490	Iredell Co.
491	Mooresville City
492	Statesville City
860	Surry Co.
861	Elkin City
862	Mount Airy City
950	Watauga Co.
970	Wilkes Co.
990	Yadkin Co.

Figure 15. Distributions of Geometry Core Scores by School Systems in the Western Region -- 1989



Western Region School Systems:

110	Buncombe Co.
111	Asheville City
200	Cherokee Co.
220	Clay Co.
380	Graham Co.
440	Haywood Co.
450	Henderson Co.
451	Hendersonville City
500	Jackson Co.
560	Macon Co.
570	Madison Co.
590	McDowell Co.
610	Mitchell Co.
750	Polk Co.
810	Rutherford Co.
870	Swain Co.
880	Transylvania Co.
995	Yancey Co.

Table 13

1989 Regional Summary Results for Geometry Proofs

STATE REPORT

		VARIABLE PROOFS																												
	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
NORTHEAST	2280	3	24	30	15	28	13	48	30	8	1	29	29	14	10	17	14	36	24	17	9	6	5	18	10	13	10	13	7	18
SOUTHEAST	5010	5	27	28	21	19	19	51	23	6	1	29	33	11	10	18	15	43	20	16	6	8	5	20	11	13	9	11	7	17
CENTRAL	7279	7	20	26	20	27	14	34	42	10	1	29	27	12	10	22	15	36	20	19	10	7	5	18	9	11	8	14	8	21
SOUTH CENTRAL	5147	8	32	25	15	21	21	54	22	3	0	35	36	10	6	13	22	45	19	9	4	11	8	23	11	11	8	10	6	12
NORTH CENTRAL	8236	6	24	24	22	23	13	43	32	10	2	26	29	15	10	20	17	32	24	17	10	8	5	18	9	11	10	14	8	17
SOUTHWEST	7942	9	29	26	21	16	16	43	33	7	1	32	28	11	8	20	20	39	21	12	7	10	6	22	9	10	7	13	7	16
NORTHWEST	4248	4	22	25	26	22	13	41	36	9	1	19	30	15	12	24	18	31	25	17	9	6	5	17	9	11	9	14	8	21
WESTERN	3676	9	29	22	21	20	14	38	39	8	1	28	28	14	9	21	15	39	20	18	8	7	5	16	9	12	9	14	8	21

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14

1989 School System Summary Results for Geometry Proofs

REGION NORTHEAST

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF							
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
BEAUFORT COUNTY	132	3	34	29	17	17	24	45	15	12	3	52	27	6	6	9	13	58	13	6	10	8	10	27	10	13	8	11	6
WASHINGTON CITY	165	7	47	28	5	14	26	26	42	5	2	29	27	10	17	17	26	42	16	8	8	10	4	25	16	11	8	8	4
BERTIE COUNTY	129	6	12	26	12	44	6	50	31	13	0	16	28	25	19	13	0	32	29	29	10	2	2	9	9	16	10	18	9
CAMDEN COUNTY	37	0	10	30	10	50	11	44	33	11	0	33	11	22	11	22	11	22	22	33	11	0	0	14	11	24	8	11	5
CHOWAN COUNTY	102	0	0	24	28	48	4	42	31	19	4	12	35	12	12	31	12	20	12	28	28	4	5	16	9	13	7	11	5
CURRITUCK COUNTY	84	0	0	33	24	43	0	48	52	0	0	14	24	19	5	38	10	19	38	24	10	2	2	14	7	10	7	13	12
DARE COUNTY	119	0	33	30	17	20	4	29	57	11	0	17	40	20	10	13	16	23	23	35	3	3	4	13	10	19	9	14	6
GATES COUNTY	55	0	14	21	7	57	14	21	43	21	0	14	14	21	7	43	8	8	15	46	23	0	0	20	2	16	7	16	7
HERTFORD COUNTY	145	3	38	30	22	8	11	65	11	11	3	28	22	19	11	19	17	54	20	9	0	12	3	27	8	10	6	16	6
HYDE COUNTY	31	13	38	38	13	0	13	88	0	0	0	13	50	13	13	13	29	57	0	0	14	13	10	19	13	6	6	16	6
MARTIN COUNTY	229	3	29	17	22	29	9	48	40	3	0	30	39	16	2	14	18	25	29	16	11	5	9	15	15	12	7	14	8
PASQUOTANK COUNTY	232	9	26	19	14	33	16	41	33	10	0	32	26	11	11	21	8	39	27	19	7	8	3	22	9	14	9	16	4
PERQUIMANS COUNTY	66	0	6	31	13	50	12	71	18	0	0	13	13	19	6	50	0	29	53	0	18	3	3	14	9	15	11	12	3
PITT COUNTY	614	1	22	38	15	24	13	53	25	8	1	41	27	12	9	12	15	38	25	13	10	6	6	16	9	13	12	12	8
TYRRELL COUNTY	32	0	13	88	0	0	0	88	13	0	0	13	25	25	13	25	0	38	38	13	13	0	9	13	6	9	19	22	6
WASHINGTON COUNTY	108	4	21	29	11	36	19	48	30	4	0	15	58	12	12	4	19	52	15	15	0	7	5	19	15	9	12	16	3

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION SOUTHEAST

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
BRUNSWICK COUNTY	202	1	21	34	27	16	20	44	31	4	0	26	38	10	4	22	13	43	23	11	10	5	3	29	11	16	9	7	5	15
CARTERET COUNTY	289	5	20	23	27	24	18	34	45	3	0	14	29	14	18	25	16	29	21	26	9	5	4	16	11	16	7	9	6	26
NEW BERN-CRAVEN	607	7	27	30	22	14	18	55	23	5	0	29	36	13	7	15	19	42	15	17	7	8	5	24	12	12	10	8	6	15
DUPLIN COUNTY	275	4	18	41	18	18	21	51	9	19	0	25	43	9	9	15	9	44	27	12	8	10	6	23	14	10	10	9	6	13
GREENE COUNTY	92	8	25	29	13	25	22	65	4	4	4	26	26	22	9	17	14	50	27	5	5	10	5	23	12	9	13	14	4	10
JONES COUNTY	48	0	50	33	8	8	33	50	17	0	0	58	42	0	0	0	25	33	8	25	8	10	6	19	23	15	6	6	6	8
LENOIR COUNTY	281	1	21	25	32	20	17	68	13	3	0	21	36	17	6	20	4	43	22	28	3	2	2	11	10	17	6	25	7	19
KINSTON CITY	179	0	9	16	21	53	7	51	29	13	0	15	13	26	15	30	9	22	22	40	7	8	3	15	11	12	9	16	6	21
NEW HANOVER COUNT	927	3	25	24	18	31	19	50	22	6	3	23	28	12	15	23	13	34	21	22	11	8	5	18	9	10	7	10	8	26
ONSLOW COUNTY	627	9	27	28	21	15	20	53	19	8	0	40	29	8	9	14	21	47	12	16	3	10	5	20	10	15	8	8	9	15
PAMLICO COUNTY	83	5	14	43	19	19	24	57	19	0	0	33	43	5	0	19	5	65	10	15	5	2	6	19	12	10	11	10	13	17
PENDER COUNTY	171	9	30	30	20	11	21	50	24	5	0	57	29	2	5	7	19	65	5	7	5	10	7	26	11	15	9	14	5	4
SAMPSON COUNTY	218	11	39	23	18	9	31	51	16	2	0	42	28	11	6	13	22	44	28	6	0	16	6	22	10	11	10	9	6	11
CLINTON CITY	108	4	32	32	14	18	18	75	7	0	0	7	44	11	11	26	8	40	32	16	4	6	5	20	11	12	10	11	8	17
WAYNE COUNTY	611	5	35	26	23	11	18	45	34	4	0	29	35	7	10	19	10	54	28	6	2	8	5	20	10	14	11	12	5	14
GOLDSBORO CITY	212	4	40	34	8	15	23	57	15	6	0	37	46	8	4	6	28	46	15	9	2	13	5	25	10	15	8	15	2	8

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION CENTRAL

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.
DURHAM COUNTY	851	6	16	28	29	21	9	30	46	13	1	23	29	14	16	19	11	44	26	15	5	6	4	17	8	12	8	17	9	20
DURHAM CITY	262	28	37	16	7	10	48	28	22	1	0	58	22	9	0	11	43	41	6	8	2	23	13	24	12	8	7	5	4	4
EDGECOMBE COUNTY	161	0	21	33	12	33	15	37	44	5	0	53	21	11	8	8	13	60	8	10	10	5	3	27	12	8	8	16	9	12
TARBORO CITY	116	3	47	30	7	13	15	37	44	4	0	21	48	3	7	21	17	47	13	20	3	16	0	20	16	8	3	19	8	11
FRANKLIN COUNTY	165	5	26	24	21	24	5	44	46	2	2	34	34	10	7	15	15	39	24	20	2	8	5	25	8	12	8	11	7	15
FRANKLINTON CITY	48	0	17	17	42	25	0	33	50	17	0	50	17	8	0	25	8	75	17	0	0	4	0	13	15	8	13	17	4	27
GRANVILLE COUNTY	226	4	43	27	21	5	16	51	32	2	0	39	42	11	2	7	20	54	20	4	4	8	4	29	14	11	11	12	4	7
HALIFAX COUNTY	193	33	24	20	18	4	40	35	25	0	0	54	38	0	8	0	35	54	8	2	0	20	10	31	14	7	7	7	3	3
ROANOKE RPDS CITY	153	3	16	29	16	37	5	27	43	24	0	21	18	18	10	33	3	21	28	33	15	1	2	18	3	6	9	14	5	41
WELDON CITY	49	17	67	8	8	0	62	31	8	0	0	67	33	0	0	0	58	33	8	0	0	33	8	35	6	2	8	2	0	6
JOHNSTON COUNTY	584	1	25	29	14	29	12	30	48	9	1	22	24	16	16	22	12	30	27	18	13	4	5	20	9	10	8	14	7	23
NASH COUNTY	498	4	25	29	24	17	10	42	43	5	0	20	31	11	9	29	16	30	28	19	7	6	4	20	11	12	8	13	6	18
ROCKY MOUNT CITY	164	2	7	30	14	47	5	10	76	7	2	25	10	28	8	30	10	23	15	53	0	5	2	16	7	9	9	15	13	24
NORTHAMPTON COUNT	144	8	24	46	16	5	14	33	50	3	0	17	57	14	6	6	28	58	14	0	0	6	7	25	14	15	13	11	4	6
VANCE COUNTY	240	8	36	26	16	13	25	37	33	5	0	64	20	3	7	5	33	62	3	0	2	8	6	23	12	18	8	14	5	8
WAKE COUNTY	2893	6	15	23	21	36	11	33	42	12	2	25	24	11	11	29	10	31	20	26	14	5	4	13	8	11	9	15	9	26
WARREN COUNTY	113	13	17	37	13	20	32	43	21	4	0	26	44	7	11	11	7	43	21	25	4	15	9	17	13	10	5	13	4	13
WILSON COUNTY	419	8	12	25	16	40	10	35	40	14	1	28	28	19	5	19	21	23	15	15	27	7	6	21	5	10	8	10	7	26

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION SOUTH CENTRAL

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.
BLADEN COUNTY	259	11	23	29	17	21	31	51	8	9	2	32	51	6	6	5	22	60	11	3	3	18	7	23	5	14	8	11	5	10
COLUMBUS COUNTY	214	0	41	27	11	21	35	44	15	6	0	38	26	4	13	19	12	41	25	8	14	5	11	20	14	13	10	11	4	13
WHITEVILLE CITY	119	7	27	33	7	27	3	67	27	3	0	30	37	27	3	3	21	45	7	17	10	8	4	24	3	13	5	22	3	17
CUMBERLAND COUNTY	2010	10	33	22	18	18	22	49	27	2	0	33	35	11	7	13	22	41	23	10	4	13	8	22	11	10	8	11	6	12
HARNETT COUNTY	324	12	34	16	16	23	34	56	8	3	0	46	26	14	7	7	30	48	14	9	0	11	13	23	12	11	6	9	5	10
HOKE COUNTY	120	3	21	31	17	28	14	79	7	0	0	10	55	16	0	19	6	35	26	13	19	7	3	17	11	8	14	18	6	18
LEE COUNTY	279	5	27	26	7	35	22	54	22	1	0	51	22	7	3	16	25	58	6	7	4	7	8	18	9	8	11	9	9	21
MONTGOMERY COUNTY	226	3	17	41	16	22	16	45	36	4	0	29	25	21	9	16	5	55	30	7	2	9	7	22	10	14	4	10	8	16
MOORE COUNTY	340	6	21	29	15	29	27	48	19	6	0	35	23	12	8	22	26	39	17	15	2	9	3	20	8	12	11	10	7	20
RICHMOND COUNTY	347	7	39	16	19	19	12	64	20	5	0	37	43	6	3	10	29	43	16	9	3	13	7	26	12	10	6	10	5	10
ROBESON COUNTY	339	11	34	39	10	6	21	63	16	0	0	39	52	2	0	6	29	46	20	5	0	12	10	30	14	12	9	5	3	5
FAIRMONT CITY	64	0	25	50	13	13	19	63	19	0	0	38	56	0	0	6	6	69	19	6	0	11	20	23	13	11	11	3	5	3
LUMBERTON CITY	191	2	38	19	17	25	12	69	14	4	0	38	33	15	6	8	13	57	15	11	4	12	7	25	9	11	9	9	7	10
RED SPRINGS	75	21	53	21	0	5	26	42	32	0	0	39	56	0	6	0	37	58	5	0	0	15	19	29	8	11	5	4	7	3
SAINT PAULS CITY	40	0	50	20	0	30	10	40	30	20	0	40	10	10	0	40	10	70	10	10	0	3	13	20	8	13	15	8	8	15
SCOTLAND COUNTY	200	10	30	20	10	30	6	66	20	8	0	28	38	12	2	20	24	34	18	12	12	8	10	24	12	13	6	10	6	14

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION NORTH CENTRAL

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.
ALAMANCE COUNTY	418	9	26	28	27	8	26	34	33	5	1	26	36	14	11	12	12	49	21	13	5	11	7	22	9	11	8	14	7	11
BURLINGTON CITY	310	6	18	18	38	19	6	55	35	3	1	26	35	19	9	10	25	35	26	9	5	10	6	18	11	10	10	14	3	17
CASWELL COUNTY	151	0	54	28	13	5	15	82	3	0	0	47	31	17	3	3	22	43	27	3	5	15	7	36	5	11	3	11	3	9
CHATHAM COUNTY	195	2	14	20	41	22	6	44	42	8	0	12	27	16	22	22	13	36	15	17	19	3	4	14	13	13	12	13	10	19
DAVIDSON COUNTY	719	3	31	23	23	19	10	53	33	5	0	21	33	18	10	18	16	30	36	8	9	7	5	23	10	9	8	14	7	16
LEXINGTON CITY	123	6	32	19	26	16	34	34	31	0	0	52	16	13	13	6	14	34	21	28	3	16	10	21	15	9	10	8	6	6
THOMASVILLE CITY	104	8	31	38	15	8	22	11	67	0	0	28	40	16	0	16	23	23	31	8	15	11	9	22	4	9	20	9	7	11
FORSYTH COUNTY	1635	7	22	25	16	30	14	38	32	15	2	26	28	15	10	21	18	25	21	22	14	8	5	15	9	12	10	15	8	19
GUILFORD COUNTY	1124	6	18	24	32	20	11	53	27	8	1	22	26	16	14	21	22	34	21	18	4	6	4	18	7	12	12	16	8	17
GREENSBORO CITY	1043	8	30	21	18	23	17	32	37	10	3	30	28	9	9	24	22	36	20	14	9	12	6	20	7	8	9	11	9	19
HIGH POINT CITY	281	1	25	25	18	31	7	57	26	10	0	44	20	14	15	7	13	32	31	21	3	5	6	19	14	11	12	14	6	12
ORANGE COUNTY	241	10	19	43	24	5	19	39	34	6	2	37	21	21	6	15	13	24	37	22	4	9	4	20	9	14	5	17	13	9
CHAPEL HILL CITY	304	3	6	17	16	58	5	31	24	35	5	11	5	21	20	43	8	13	24	30	25	3	2	9	3	9	11	15	13	37
PERSON COUNTY	204	2	21	38	19	19	2	37	55	6	0	31	24	14	16	16	10	60	14	12	4	5	2	13	4	20	22	14	11	10
RANDOLPH COUNTY	409	3	27	25	18	28	15	48	29	8	0	24	38	19	6	13	8	34	24	25	9	2	4	17	13	16	10	11	8	19
ASHEBORO CITY	161	17	51	12	7	12	23	44	21	13	0	40	30	20	5	5	34	46	20	0	0	11	6	32	11	8	8	7	5	12
ROCKINGHAM COUNTY	122	6	22	25	16	31	16	32	39	6	6	20	33	7	7	33	10	7	41	21	21	2	2	16	13	13	11	9	7	27
EDEN CITY	177	0	18	27	25	30	2	14	53	26	5	18	24	24	9	24	2	27	22	9	40	5	1	11	8	15	9	15	10	27
WEST. ROCKINGHAM	147	8	21	16	13	42	17	56	25	3	0	19	30	14	11	27	19	31	19	17	14	12	4	14	11	9	11	12	14	14
REIDSVILLE CITY	137	9	40	23	23	6	18	56	21	6	0	32	32	12	6	18	32	38	15	15	0	12	7	28	7	9	11	12	5	8
STOKES COUNTY	231	3	13	22	38	23	7	49	34	7	3	21	39	9	5	26	7	24	47	13	9	6	5	14	8	13	8	22	7	16

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION SOUTHWEST

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
ANSON COUNTY	192	12	59	8	10	10	34	40	22	2	2	52	26	7	4	11	28	40	17	11	4	24	9	29	9	8	5	5	5	5
CABARRUS COUNTY	607	6	43	23	18	10	8	47	38	7	0	19	35	11	9	25	15	36	22	17	10	8	4	24	8	8	7	12	7	21
KANNAPOLIS CITY	240	2	34	19	18	27	15	60	25	0	0	54	31	7	3	5	39	36	14	12	0	9	4	21	10	13	9	23	5	6
CLEVELAND COUNTY	283	4	21	32	18	24	11	36	29	23	1	31	26	13	1	29	20	33	20	13	14	5	5	18	8	9	6	13	11	25
KINGS MTN. CITY	107	7	33	15	22	22	22	44	22	11	0	30	0	22	19	30	12	42	27	8	12	7	3	22	2	9	9	20	18	9
SHELBY CITY	146	0	19	38	16	27	14	35	35	14	3	41	27	3	5	24	14	34	20	20	11	12	3	28	10	14	5	11	5	12
GASTON COUNTY	1199	10	27	30	20	13	23	49	24	5	0	36	29	11	8	15	18	45	22	12	4	13	7	23	9	8	7	14	6	13
LINCOLN COUNTY	369	10	24	28	24	14	11	33	38	14	3	24	30	15	4	26	16	37	20	14	12	8	7	18	9	10	6	15	4	23
MECKLENBURG COUNT	3289	11	28	24	22	15	15	42	35	6	2	33	27	10	10	20	22	39	20	12	7	11	6	20	10	10	7	12	7	17
ROWAN COUNTY	434	3	31	31	20	15	17	37	40	4	2	29	37	7	10	17	17	38	28	10	8	8	8	24	9	10	7	14	4	16
SALISBURY CITY	92	0	17	21	17	46	8	54	29	8	0	14	32	32	0	23	18	32	32	5	14	2	4	20	8	17	10	11	7	22
STANLY COUNTY	298	28	38	20	13	1	26	42	27	4	0	38	39	8	4	11	25	48	17	5	4	15	9	30	7	11	5	7	5	11
ALBEMARLE CITY	85	0	5	43	14	38	0	45	50	5	0	14	10	29	10	38	5	10	33	33	19	1	0	16	8	9	2	18	7	38
UNION COUNTY	499	6	25	24	25	19	14	51	28	7	0	22	22	18	10	28	18	39	23	11	9	8	8	18	9	10	7	16	8	17
MONROE CITY	102	0	11	37	26	26	4	28	48	16	4	28	20	12	16	24	12	48	32	8	0	3	2	20	13	12	10	14	9	19

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION NORTHWEST

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
ALEXANDER COUNTY	219	7	18	30	21	23	13	68	18	2	0	11	33	18	5	33	19	19	21	27	13	5	5	16	9	10	10	16	11	17
ALLEGHANY COUNTY	84	14	36	41	5	5	24	67	5	5	0	24	43	14	14	5	15	50	20	10	5	7	12	29	13	12	8	6	6	7
ASHE COUNTY	125	3	12	27	36	21	0	39	39	19	3	3	26	26	13	32	27	30	23	10	10	1	1	11	10	13	13	18	14	21
AVERY COUNTY	112	10	21	31	3	34	21	39	32	7	0	21	50	7	18	4	22	56	11	7	4	16	13	10	14	6	6	11	12	13
BURKE COUNTY	431	3	19	19	29	30	19	45	29	6	2	20	30	13	12	25	20	35	22	12	11	5	4	16	11	10	9	14	9	22
CALDWELL COUNTY	415	7	21	23	30	20	16	38	42	4	0	24	30	18	13	16	28	36	14	13	10	8	5	18	12	14	7	13	7	15
CATAWBA COUNTY	402	2	16	29	43	10	13	21	52	13	1	13	20	11	9	46	11	27	24	29	9	7	3	10	8	10	10	17	11	24
HICKORY CITY	242	0	23	18	20	39	14	46	32	8	0	27	19	11	6	35	8	35	28	20	8	3	2	16	7	8	8	18	6	32
NEWTON CITY	128	0	16	34	38	13	9	36	36	18	0	31	16	22	22	9	0	10	48	32	10	4	4	16	13	15	12	13	9	14
DAVIE COUNTY	214	4	30	28	17	22	18	49	18	16	0	15	40	16	11	18	11	26	39	11	13	5	2	23	7	13	12	13	9	16
IREDELL COUNTY	491	5	27	31	21	17	16	23	52	9	0	15	36	15	14	20	12	37	35	10	6	7	6	16	7	10	11	15	8	20
MOORESVILLE CITY	81	0	5	14	33	48	0	25	40	35	0	5	20	0	5	70	0	20	45	20	15	0	2	11	4	6	7	27	6	36
STATESVILLE CITY	133	6	29	9	12	44	19	48	23	6	3	26	18	18	6	32	24	44	12	9	12	4	2	20	8	14	6	14	6	28
SURRY COUNTY	321	4	22	22	22	30	6	46	36	10	2	19	28	15	13	26	15	28	30	19	8	6	2	19	6	10	10	12	8	26
ELKIN CITY	59	7	53	33	7	0	7	53	33	7	0	7	73	7	7	7	29	14	43	14	0	5	10	25	15	19	8	5	5	7
MOUNT AIRY CITY	75	5	5	35	45	10	0	35	65	0	0	0	6	24	41	29	33	11	11	22	22	9	5	13	5	9	7	13	7	31
WATAUGA COUNTY	161	8	10	13	50	20	7	27	56	10	0	26	13	5	21	36	12	27	27	24	10	4	2	14	8	9	14	16	9	24
WILKES COUNTY	376	4	28	33	12	23	12	51	26	12	0	33	37	13	6	11	31	31	22	11	6	11	8	23	10	10	9	10	5	15
YADKIN COUNTY	179	2	30	13	46	9	14	57	27	2	0	7	40	22	22	9	14	32	20	30	5	6	3	15	12	11	9	13	10	21

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 14, cont'd.

REGION WESTERN

REGION REPORT

VARIABLE PROOFS

	NUMBER TESTED	PERPENDICULAR BISECTOR					THREE DIMENSIONAL					PARALLEL LINES					SIMILAR TRIANGLES					COMMON PROOF								
SCORE POINTS		0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
BUNCOMBE COUNTY	934	9	24	24	27	16	15	32	45	6	1	24	28	14	12	22	13	40	23	19	6	9	4	16	8	14	8	14	9	19
ASHEVILLE CITY	182	24	24	16	24	11	30	19	43	6	2	49	16	7	7	22	33	33	11	13	9	14	4	15	9	7	10	14	6	19
CHEROKEE COUNTY	170	5	36	27	9	23	17	36	38	7	2	40	36	7	5	12	26	29	17	17	12	1	3	18	13	16	12	12	5	19
CLAY COUNTY	57	57	21	7	7	7	53	20	20	7	0	71	14	0	7	7	21	71	7	0	0	21	21	33	9	4	2	0	2	9
GRAHAM COUNTY	50	15	31	15	0	38	33	8	50	8	0	31	38	15	0	15	33	17	17	0	33	8	6	20	14	14	6	6	0	26
HAYWOOD COUNTY	348	3	43	21	21	12	9	42	44	5	0	27	35	7	14	17	23	39	21	13	4	8	8	18	7	12	8	14	9	16
HENDERSON COUNTY	324	8	20	34	25	14	5	36	54	5	0	9	33	23	15	20	5	30	23	34	9	4	4	11	7	9	9	16	10	29
HENDRSNVLLE CITY	104	15	19	12	23	31	19	23	46	12	0	12	27	15	19	27	12	35	27	15	12	5	2	18	10	9	6	6	6	39
JACKSON COUNTY	140	17	31	19	11	22	17	64	19	0	0	24	33	21	0	21	11	63	23	3	0	4	7	26	7	15	9	10	4	18
MACON COUNTY	135	3	37	6	11	43	3	47	32	18	0	26	32	21	6	15	6	38	19	38	0	4	3	13	11	9	15	16	3	26
MADISON COUNTY	74	11	11	21	21	37	0	37	21	32	11	33	22	11	17	17	0	44	28	17	11	0	3	11	15	7	9	20	7	28
MCDOWELL COUNTY	305	11	27	17	11	35	25	35	22	16	3	51	21	11	0	17	9	38	23	18	12	10	5	13	8	10	8	16	7	23
MITCHELL COUNTY	94	4	35	26	17	17	17	57	26	0	0	46	17	4	0	33	21	38	4	21	17	9	9	15	9	12	4	13	9	22
POLK COUNTY	68	6	28	44	17	6	6	50	33	6	6	39	28	11	17	6	0	29	21	43	7	6	4	22	16	16	6	13	6	10
RUTHERFORD COUNTY	306	8	40	17	10	26	14	36	45	4	0	21	31	21	7	20	17	45	22	8	8	8	9	19	7	13	8	19	6	11
SWAIN COUNTY	102	7	33	22	19	19	8	56	28	8	0	46	19	19	15	0	17	67	13	4	0	8	5	21	8	13	15	17	3	12
TRANSYLVANIA COUN	219	2	21	29	36	13	4	63	23	9	2	11	22	20	4	44	10	29	17	27	17	4	2	9	12	10	11	14	14	26
YANCEY COUNTY	64	6	25	0	44	25	6	38	44	13	0	13	31	6	19	31	19	19	19	25	19	3	3	14	6	13	13	8	9	31

NOTE: FOUR FORMS OF THE GEOMETRY PROOFS TEST WERE ADMINISTERED IN EACH CLASSROOM. EACH STUDENT TOOK ONE COMMON PROOF AND ONE OF FOUR VARIABLE PROOFS. THE NUMBERS IN THE TABLE REPRESENT THE PERCENTAGES OF STUDENTS ATTAINING EACH SCORE POINT.

Table 15
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region Northeast

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Beaufort County	34.0	39.5	22.4	17.8	46.2	18.3
Washington City	36.8	57.4	35.2	31.2	45.5	26.1
Bertie County	34.4	30.5	17.5	15.3	78.3	23.9
Camden County	44.6	33.3	24.7	24.7	75.7	25.2
Chowan County	40.1	49.8	33.2	30.1	66.7	33.2
Currituck County	42.6	41.1	29.2	28.5	73.8	30.3
Dare County	45.0	52.3	39.2	38.3	68.9	36.0
Gates County	40.2	51.9	34.8	31.0	78.2	40.6
Hertford County	34.4	35.0	20.1	16.6	50.3	17.6
Hyde County	38.7	42.9	27.7	24.9	45.2	19.4
Martin County	36.2	45.5	27.4	24.1	55.9	25.4
Pasquotank County	36.1	54.8	33.0	28.4	57.8	31.7
Perquimans County	41.0	49.2	33.6	31.0	71.2	35.0
Pitt County	39.4	42.0	27.6	26.3	62.9	26.4
Tyrrell County	40.3	54.2	36.4	34.1	71.9	39.0
Washington County	32.3	48.4	26.1	20.7	53.7	26.0

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region Southeast

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Brunswick County	36.5	34.4	20.9	18.0	51.8	17.8
Carteret County	40.1	47.4	31.7	29.0	63.3	30.0
Craven County	38.5	51.7	33.2	30.0	50.7	26.2
Duplin County	34.6	43.4	25.0	21.1	47.3	20.5
Greene County	37.8	39.0	24.6	22.2	50.0	19.5
Jones County	33.3	41.4	23.0	20.6	41.7	17.2
Lenoir County	35.6	50.4	29.9	25.4	75.1	37.8
Kinston City	39.3	43.7	28.6	26.2	63.1	27.6
New Hanover County	38.5	59.7	38.3	34.6	61.2	36.5
Onslow County	36.8	48.0	29.4	25.8	54.5	26.2
Pamlico County	39.3	40.1	26.2	24.8	60.2	24.2
Pender County	33.5	45.0	25.1	20.4	46.2	20.8
Sampson County	33.4	36.2	20.1	16.7	47.2	17.1
Clinton City	40.1	39.4	26.3	24.7	58.3	23.0
Wayne County	36.1	59.8	36.0	32.0	57.1	34.2
Goldsboro City	31.9	66.2	35.2	26.1	47.2	31.2

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region Central

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Durham County	40.1	57.3	38.3	35.9	65.3	37.4
Durham City	29.1	37.3	18.1	11.1	28.2	10.5
Edgecombe County	33.6	32.5	18.2	15.6	52.8	17.2
Tarboro City	36.8	41.6	25.5	21.9	49.1	20.4
Franklin County	36.7	37.8	23.1	21.2	52.7	19.9
Franklinton City	36.8	37.8	23.2	22.2	68.8	26.0
Granville County	34.9	37.8	22.0	19.1	44.7	16.9
Halifax County	29.1	29.0	14.1	9.7	25.4	7.4
Roanoke Rapids City	40.9	74.9	51.0	49.4	75.2	56.3
Weldon City	24.4	60.0	24.4	9.9	18.4	11.0
Johnston County	39.0	47.7	31.0	28.5	61.5	29.3
Nash County	38.5	53.1	34.1	31.2	58.8	31.2
Rocky Mount City	39.9	39.7	26.4	25.4	69.5	27.6
Northampton County	28.5	44.9	21.3	14.3	48.6	21.8
Vance County	33.0	45.3	24.9	21.4	50.8	23.0
Wake County	42.1	58.5	41.1	39.2	70.6	41.3
Warren County	33.0	33.2	18.3	15.0	46.0	15.3
Wilson County	39.0	39.9	25.9	23.7	59.9	23.9

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region South Central

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Bladen County	32.7	50.1	27.3	21.6	46.7	23.4
Columbus County	35.2	32.8	19.3	17.0	50.5	16.6
Whiteville City	34.7	59.0	34.1	29.2	59.7	35.2
Cumberland County	35.1	59.2	34.7	29.4	46.0	27.2
Harnett County	34.1	33.5	19.0	15.7	41.1	13.8
Hoke County	37.3	28.9	18.0	16.2	62.5	18.1
Lee County	35.8	52.8	31.5	26.0	57.3	30.3
Montgomery County	36.5	64.1	39.0	33.0	52.2	33.5
Moore County	37.8	44.7	28.2	25.2	60.0	26.8
Richmond County	33.4	47.0	26.1	21.0	41.5	19.5
Robeson County	32.0	26.2	14.0	11.1	33.6	8.8
Fairmont City	32.7	41.2	22.4	17.8	32.8	13.5
Lumberton City	33.2	57.3	31.7	25.1	47.1	27.0
Red Springs	29.7	49.0	24.2	14.4	29.3	14.4
Saint Pauls City	39.3	34.5	22.6	19.8	57.5	19.8
Scotland County	37.5	30.9	19.3	17.8	48.0	14.8

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region North Central

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Alamance County	36.7	47.2	28.9	26.0	51.2	24.2
Burlington City	39.8	62.4	41.4	36.8	53.9	33.6
Caswell County	32.0	46.4	24.8	21.3	37.7	17.5
Chatham County	39.9	40.3	26.8	25.1	66.7	26.9
Davidson County	35.3	53.5	31.5	26.6	55.2	29.5
Lexington City	32.3	45.8	24.6	19.5	38.2	17.5
Thomasville City	35.8	48.8	29.1	24.2	54.8	26.7
Forsyth County	38.7	53.7	34.6	31.5	63.7	34.2
Guilford County	40.3	58.0	38.9	36.3	64.6	37.5
Greensboro City	36.9	64.7	39.7	33.4	54.7	35.4
High Point City	40.1	39.3	26.2	25.2	55.5	21.8
Orange County	34.6	56.4	32.5	27.3	58.5	33.0
Chapel Hill City	46.2	83.3	64.1	63.3	83.2	69.3
Person County	39.1	48.0	31.2	29.2	76.0	36.5
Randolph County	37.0	33.6	20.7	19.1	64.1	21.5
Asheboro City	36.4	64.0	38.9	36.0	39.8	25.4
Rockingham County	37.3	35.1	21.8	20.2	66.4	23.3
Eden City	41.8	51.4	35.8	35.1	75.1	38.6
West. Rockingham	36.1	46.9	28.2	22.5	59.2	27.8
Reidsville City	34.8	49.6	28.8	23.5	46.0	22.8
Stokes County	36.5	45.2	27.5	24.9	66.7	30.1

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region Southwest

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Anson County	30.1	48.8	24.4	16.1	28.1	13.7
Cabarrus County	38.0	62.4	39.5	35.9	55.0	34.3
Kannapolis City	31.5	59.9	31.4	25.4	56.2	33.7
Cleveland County	36.6	43.7	26.7	22.8	64.7	28.3
Kings Mountain City	38.0	34.2	21.6	19.6	65.4	22.4
Shelby City	36.5	56.7	34.5	30.2	47.9	27.2
Gaston County	34.6	50.7	29.2	24.1	47.8	24.2
Lincoln County	35.8	55.6	33.2	27.9	58.0	32.2
Mecklenburg County	37.7	59.7	37.6	33.3	52.5	31.3
Rowan County	36.4	44.5	27.0	23.9	51.2	22.8
Salisbury City	38.0	43.1	27.3	26.0	66.3	28.6
Stanly County	34.7	55.8	32.2	27.8	39.3	21.9
Albemarle City	42.9	53.0	37.9	36.6	74.1	39.3
Union County	40.1	45.0	30.1	28.7	57.1	25.7
Monroe City	39.6	46.3	30.6	27.2	62.7	29.1

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

Region Northwest

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Alexander County	35.7	56.0	33.4	30.2	64.3	36.3
Alleghany County	33.8	65.9	37.1	31.0	39.3	25.9
Ashe County	42.3	38.8	27.3	26.3	77.6	30.1
Avery County	33.2	50.9	28.1	22.9	47.3	24.1
Burke County	38.9	44.2	28.7	26.5	63.8	28.2
Caldwell County	37.5	40.4	25.3	23.1	56.1	22.7
Catawba County	44.7	36.7	27.3	26.7	71.6	26.3
Hickory City	41.5	62.8	43.5	41.6	71.9	45.2
Newton City	38.4	47.7	30.6	28.7	63.3	30.2
Davie County	39.3	55.4	36.3	34.9	62.6	34.7
Iredell County	36.7	50.9	31.2	27.4	63.7	32.4
Mooresville City	44.9	52.9	39.6	38.1	82.7	43.8
Statesville City	35.4	51.8	30.6	26.6	66.9	34.7
Surry County	39.7	46.9	31.0	29.3	67.0	31.4
Elkin City	34.9	69.0	40.1	35.9	44.1	30.4
Mount Airy City	41.4	56.5	39.0	37.9	66.7	37.7
Watauga County	42.1	47.8	33.5	32.7	70.8	33.8
Wilkes County	33.6	41.4	23.2	18.8	47.9	19.8
Yadkin County	39.0	41.8	27.2	24.8	63.7	26.6

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Table 15, cont'd.
North Carolina End-of-Course Testing Program
Core Performance, Participation Rate, Yield, Effective Yield, Proof Scores, and Proofs Yield
Geometry: 1989

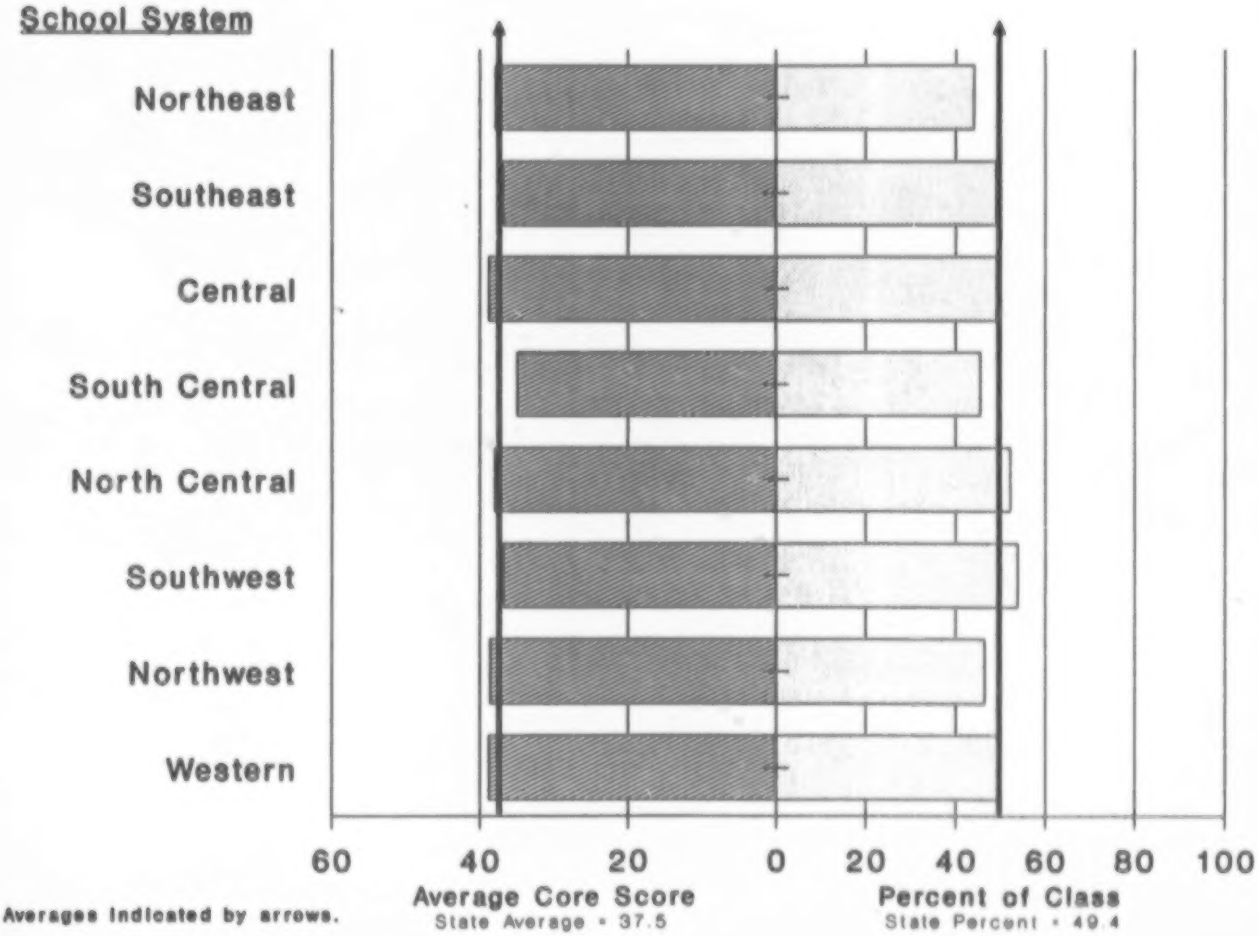
Region Western

School System	Average Core	Percent of Class	Yield	Effective Yield	Percent of Proofs 2.0 or Above	Proofs Yield
Buncombe County	40.6	55.3	37.4	34.9	63.7	35.2
Asheville City	38.0	52.4	33.2	29.4	57.1	29.9
Cherokee County	37.7	49.1	30.9	28.8	65.3	32.1
Clay County	32.3	57.5	30.9	23.3	15.8	9.1
Graham County	38.0	43.9	27.8	23.1	52.0	22.8
Haywood County	36.9	58.3	35.9	32.0	59.2	34.5
Henderson County	41.1	48.8	33.4	32.0	73.5	35.8
Hendersonville City	41.6	68.4	47.4	46.5	65.4	44.7
Jackson County	38.2	42.6	27.1	25.8	55.7	23.7
Macon County	38.4	47.6	30.5	28.7	68.1	32.4
Madison County	39.7	26.8	17.7	15.5	71.6	19.2
McDowell County	35.5	54.8	32.4	28.3	63.0	34.5
Mitchell County	35.9	46.2	27.6	24.3	59.6	27.5
Polk County	37.1	43.5	26.9	24.6	51.5	22.4
Rutherford County	37.1	33.0	20.4	18.1	57.2	18.9
Swain County	36.3	77.1	46.7	42.1	58.8	45.4
Transylvania County	41.7	59.9	41.6	39.6	74.0	44.3
Yancey County	42.4	26.4	18.7	18.4	73.4	19.4

Note: *Percent of class* is an estimate of Geometry participation calculated by dividing the total number of Geometry students by the number of students in the ninth grade class. *Yield* is an index of the effectiveness of an Geometry program which combines participation and performance. It is calculated by multiplying the percent of a class taking Geometry by the percent of core items answered correctly and then multiplying by 100. *Effective yield* is a similar index which counts as 'participating' in Geometry only those students whose achievement is estimated to be passing. *Proofs yield* is an index of the effectiveness of proofs instruction which is obtained by multiplying the participation rate by the percentage of students obtaining a score of 2.0 or better on the proofs portion of the test.

Figure 16

Geometry Core Scores and Participation Rates by Region--1989



State Averages indicated by arrows.

Figure 17

Geometry Core Scores and Participation Rates in the Northeast Region--1989

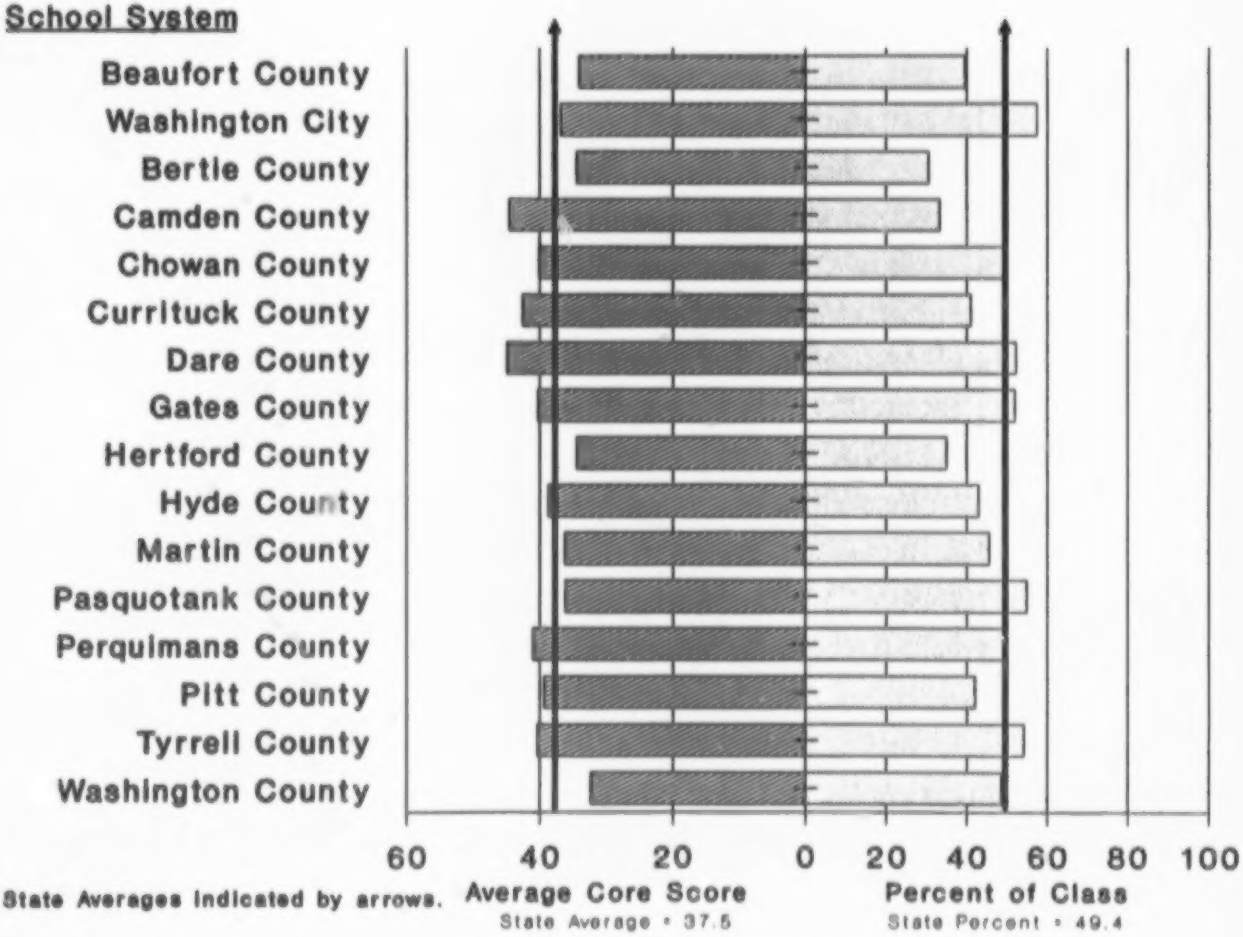
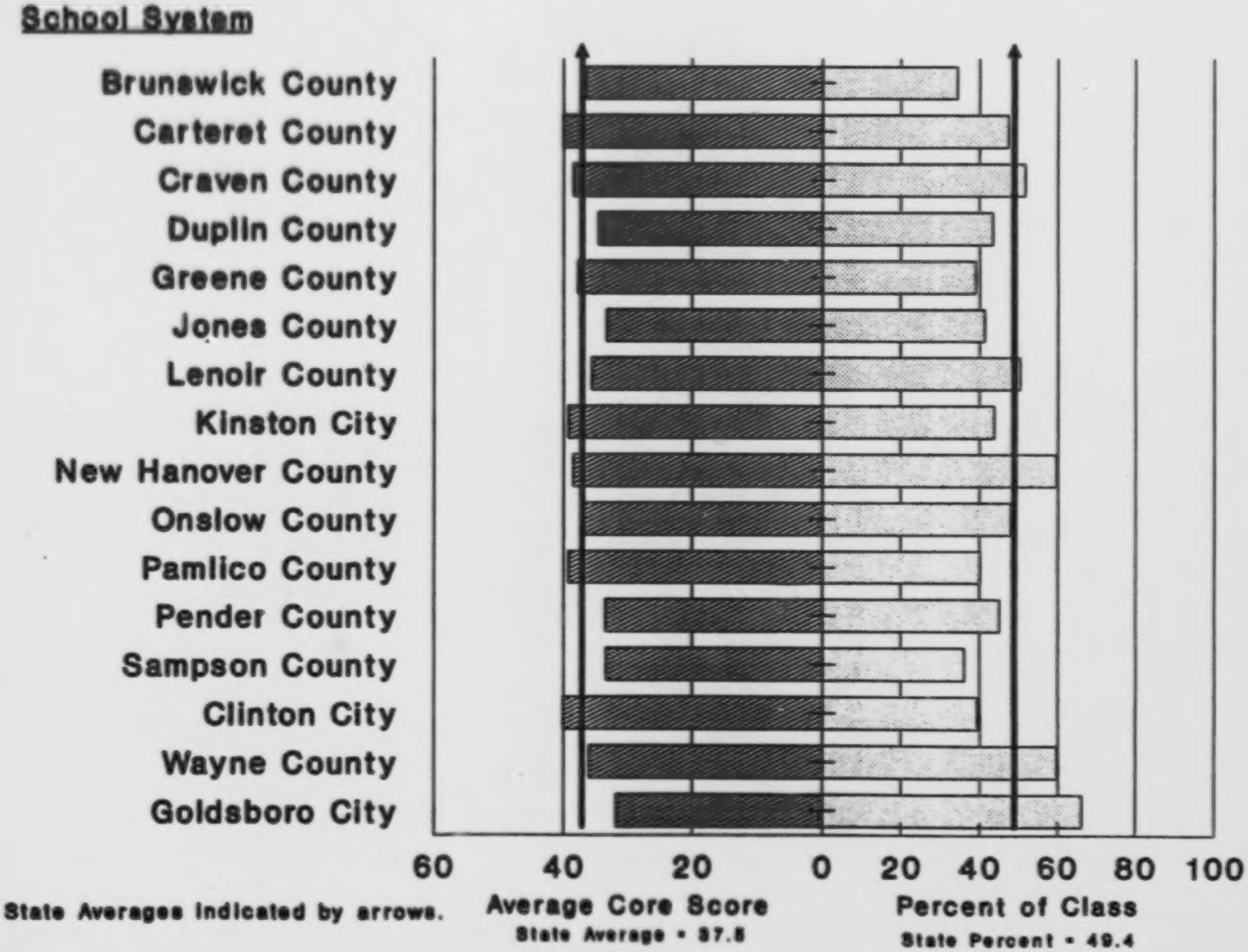


Figure 18

Geometry Core Scores and Participation Rates in the Southeast Region--1989



State Averages indicated by arrows.

Figure 19

Geometry Core Scores and Participation Rates in the Central Region--1989

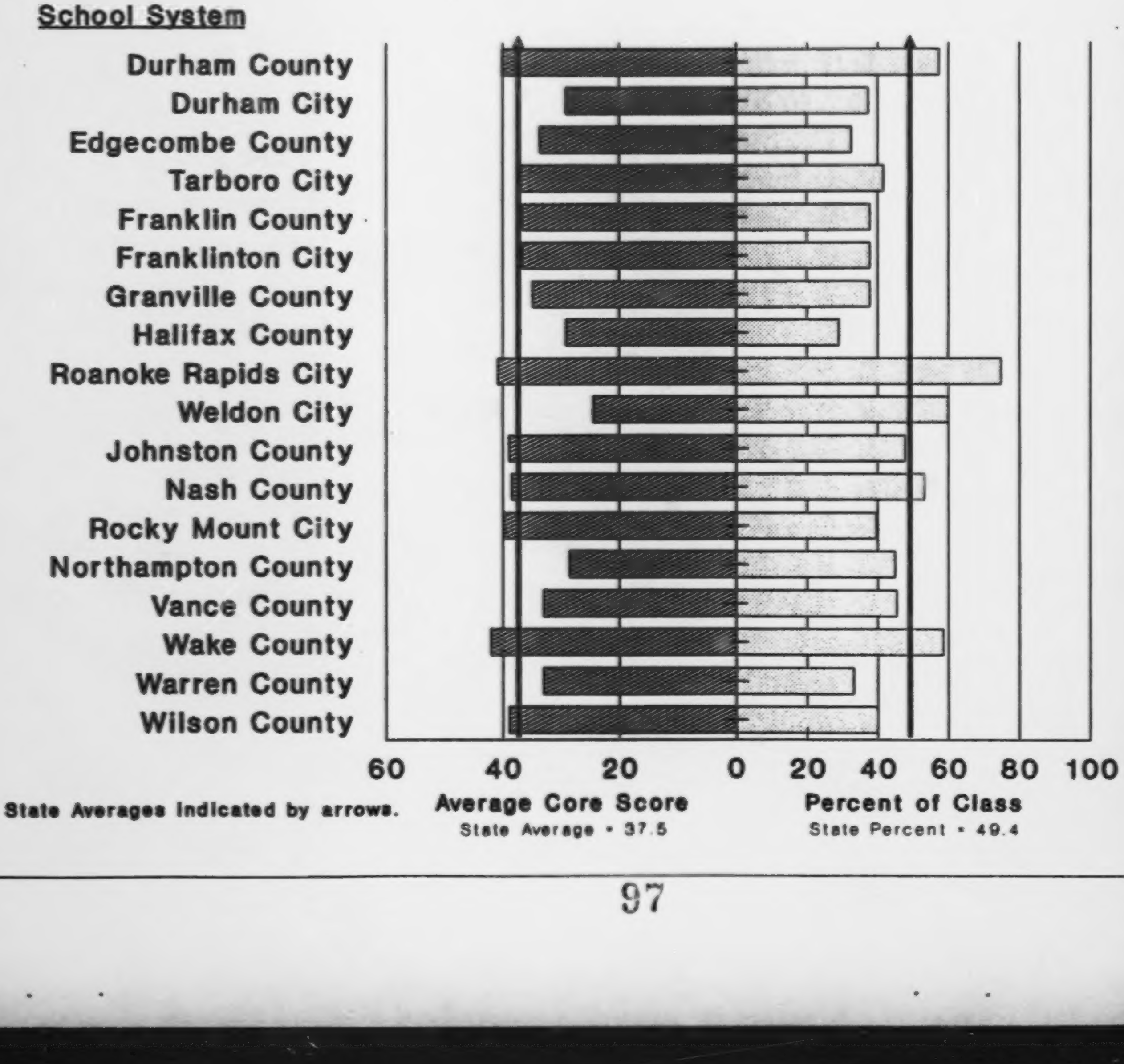


Figure 20

Geometry Core Scores and Participation Rates in the South Central Region--1989

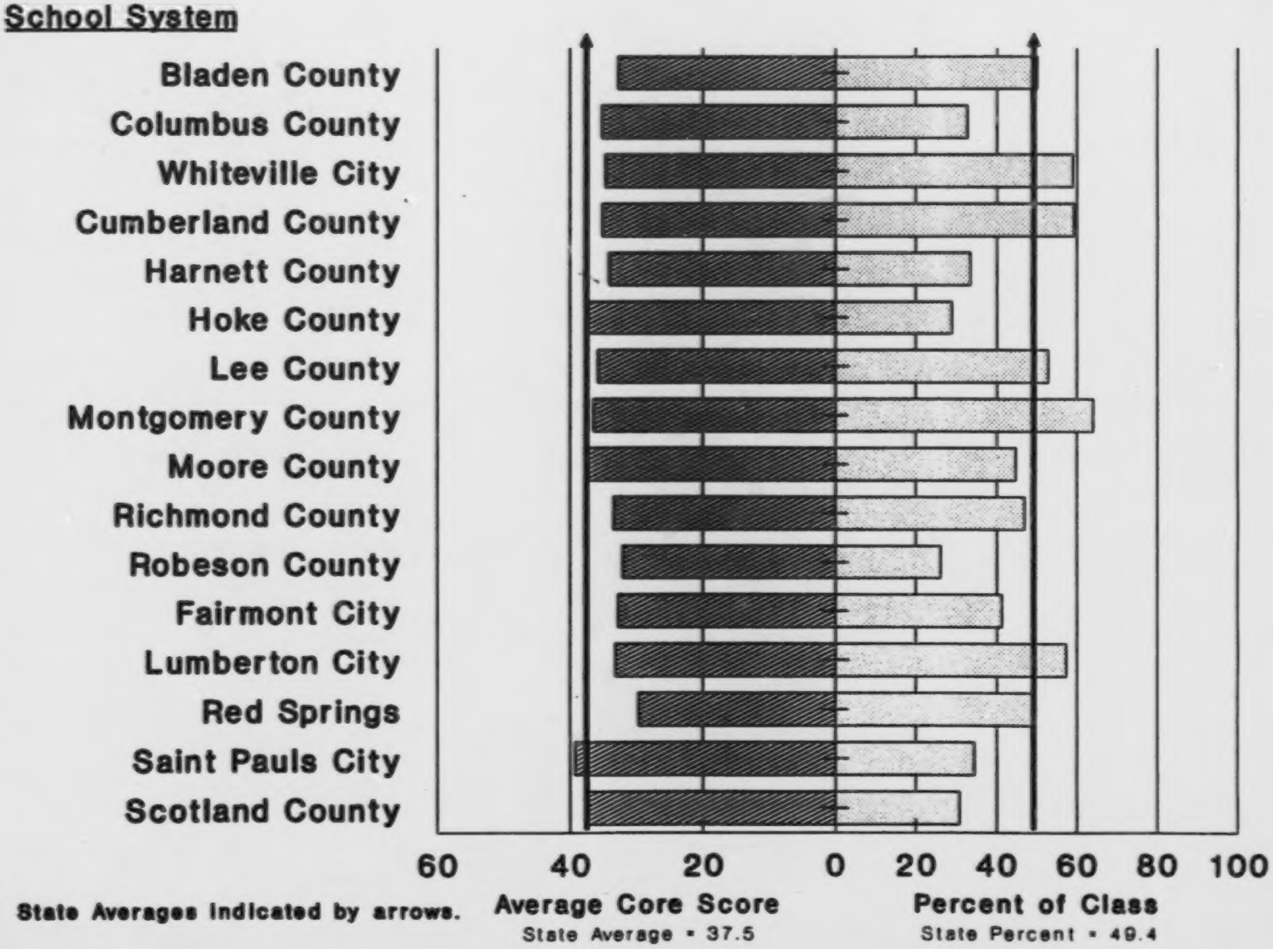
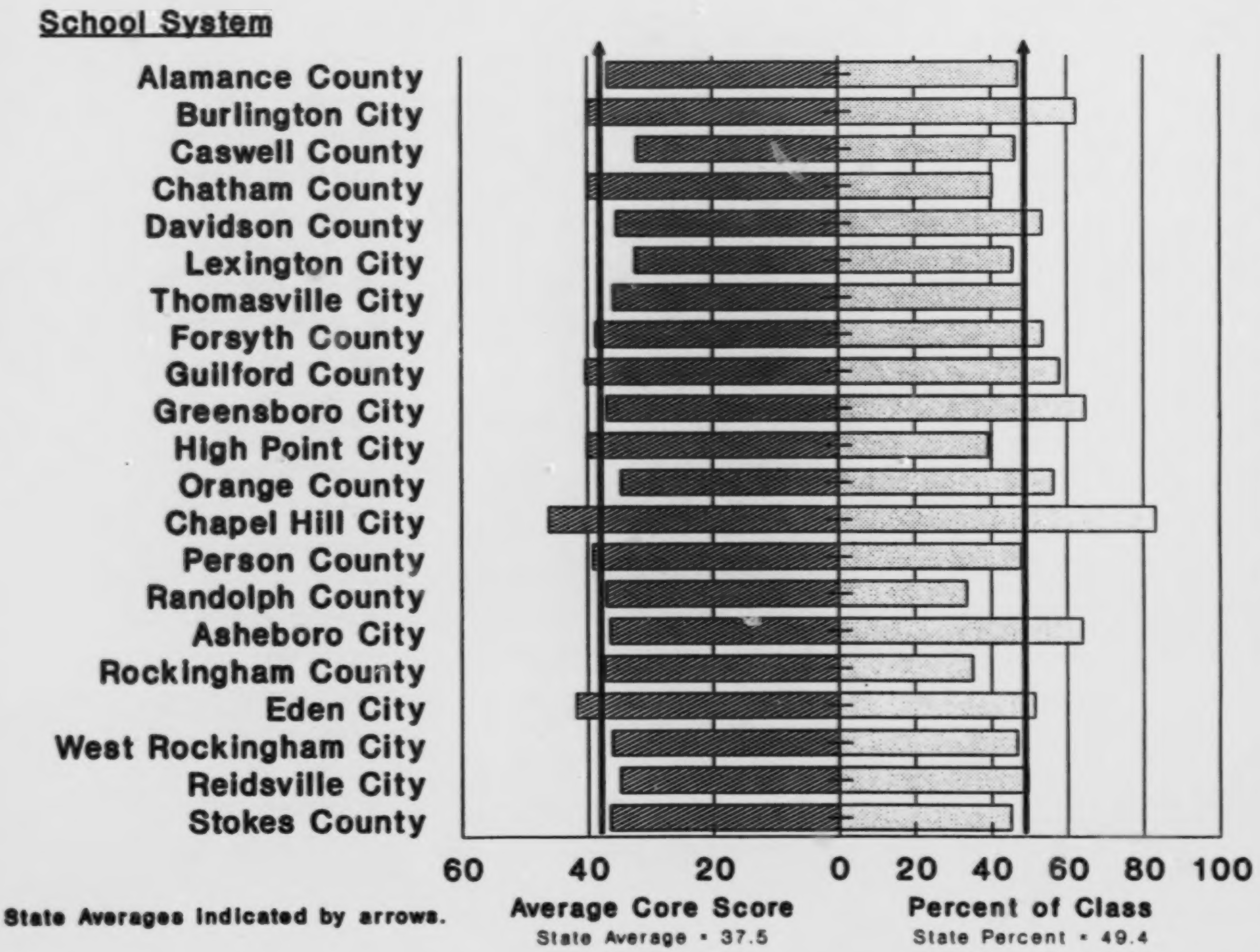


Figure 21

Geometry Core Scores and Participation Rates in the North Central Region--1989



State Averages indicated by arrows.

Figure 22
Geometry Core Scores and Participation Rates in the Southwest Region--1989

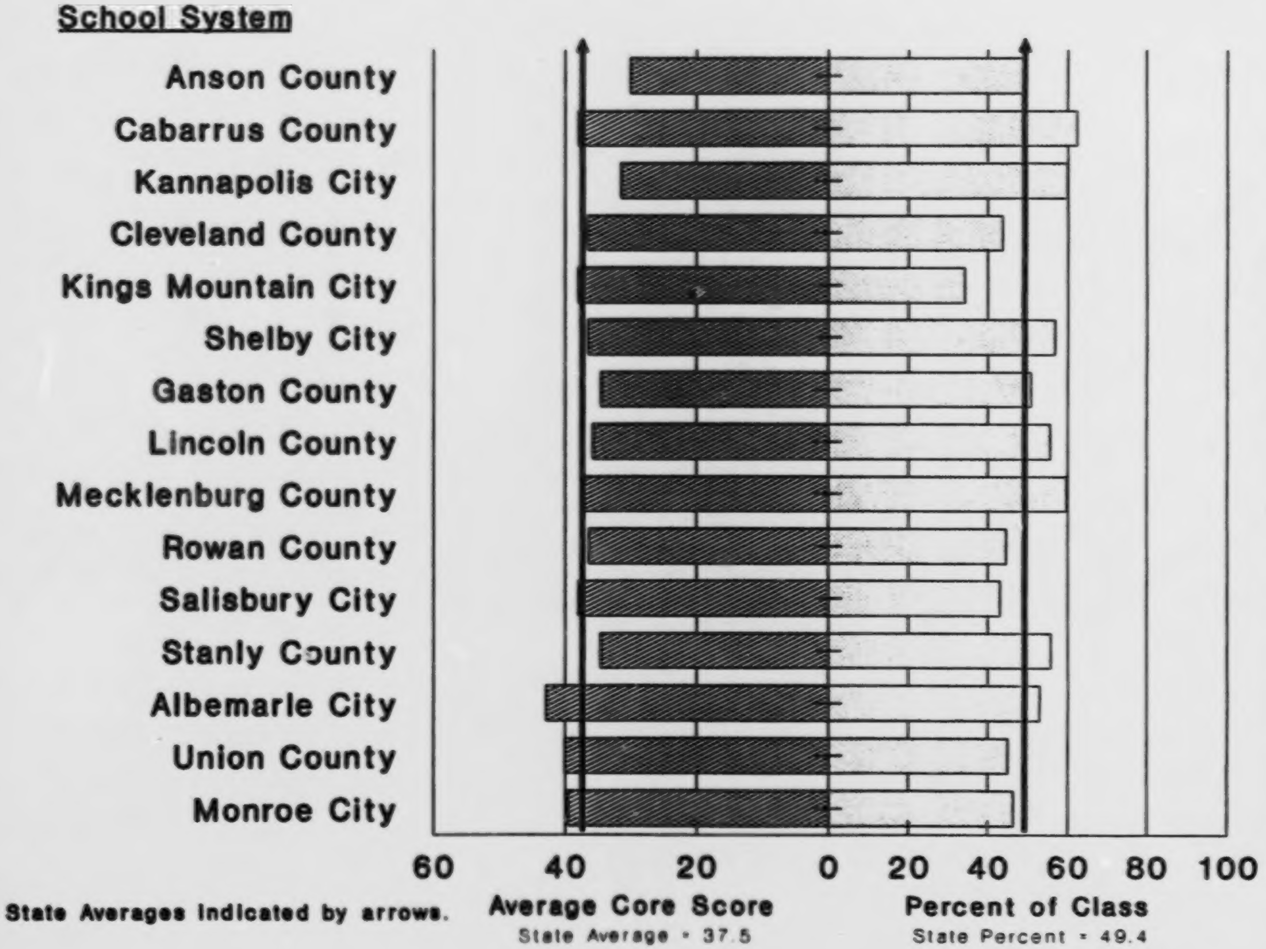
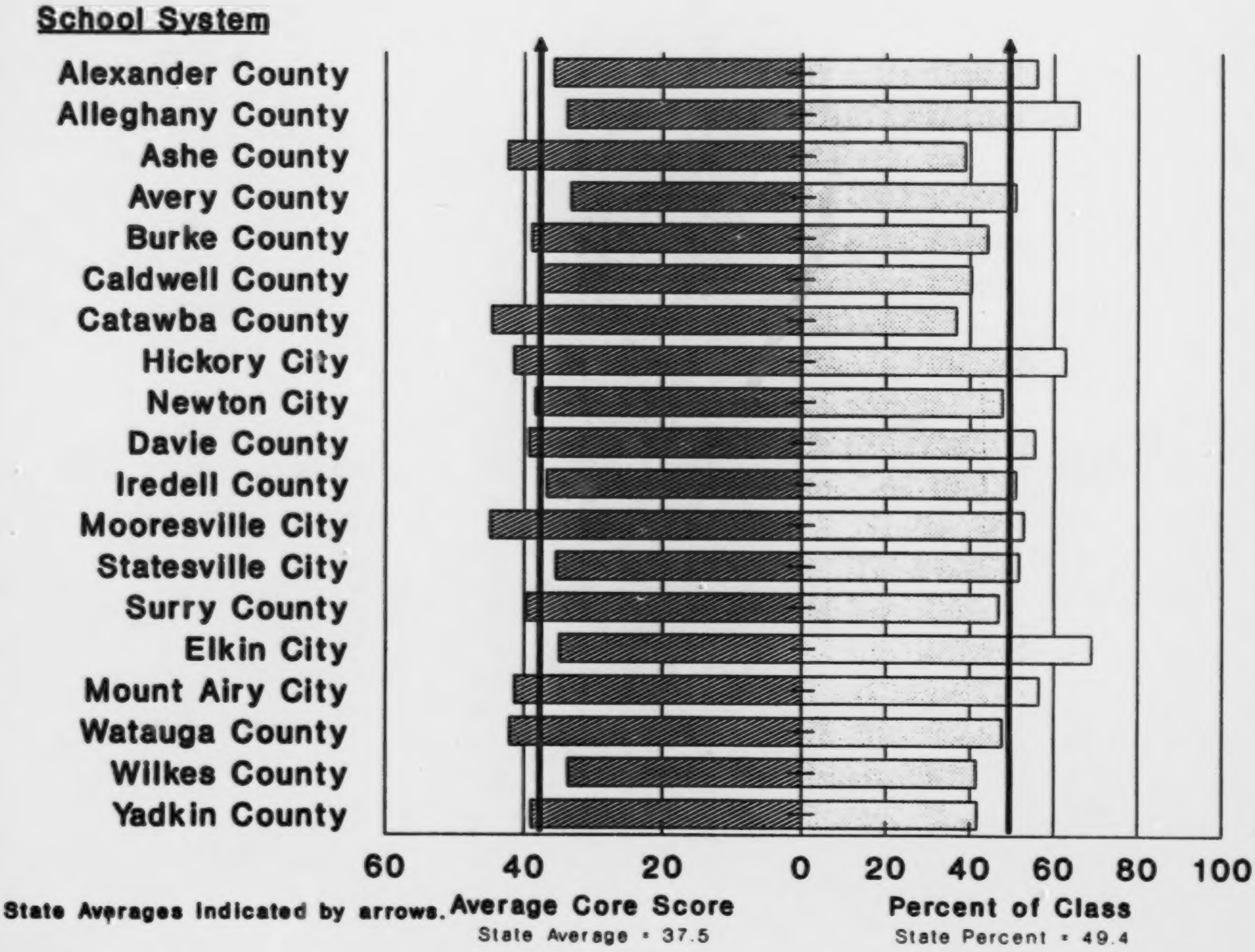


Figure 23

Geometry Core Scores and Participation Rates in the Northwest Region--1989



State Averages indicated by arrows.

Figure 24

Geometry Core Scores and Participation Rates in the Western Region--1989

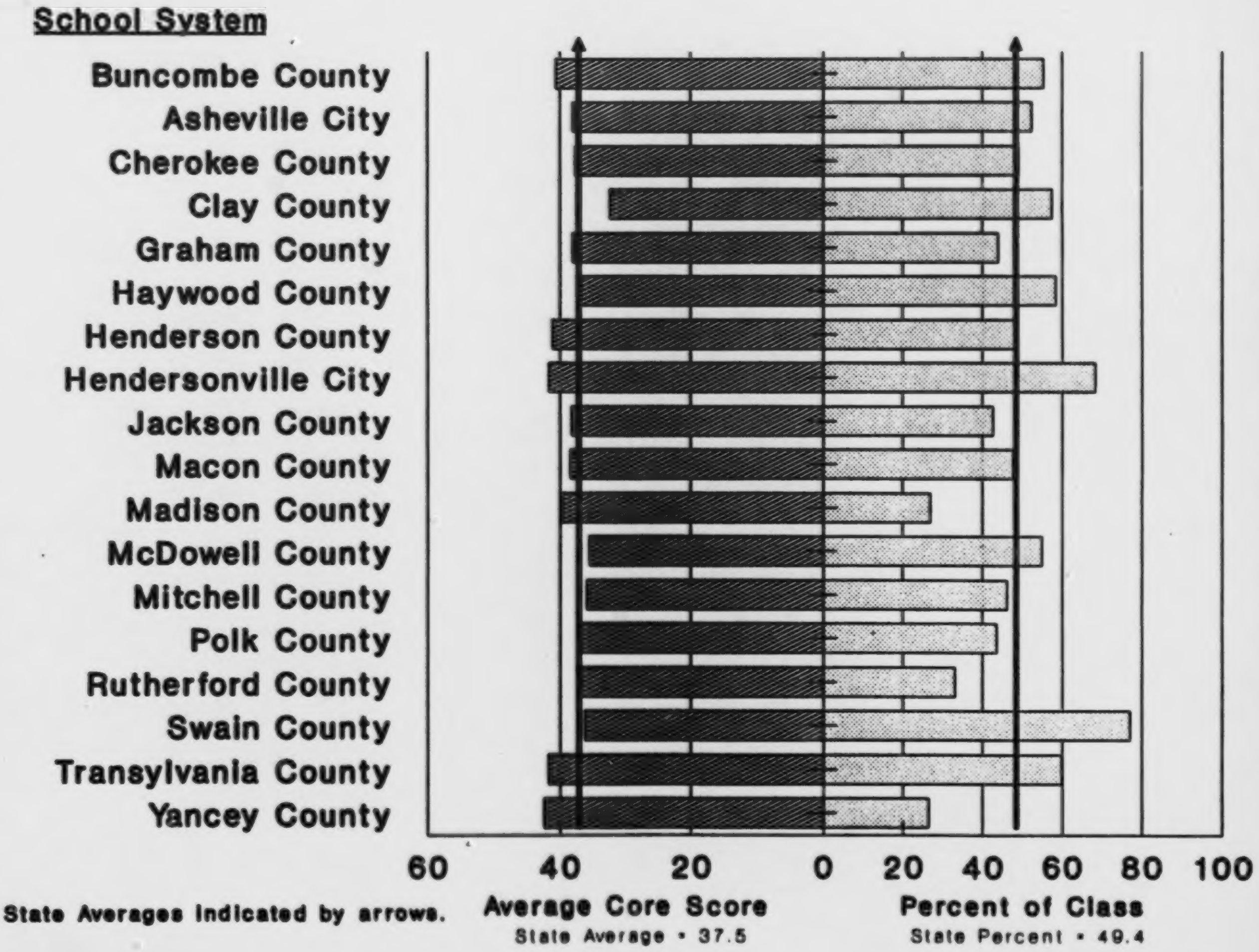


Figure 25

Proof Scores of 2.0 or Above and Participation Rates by Region--1989

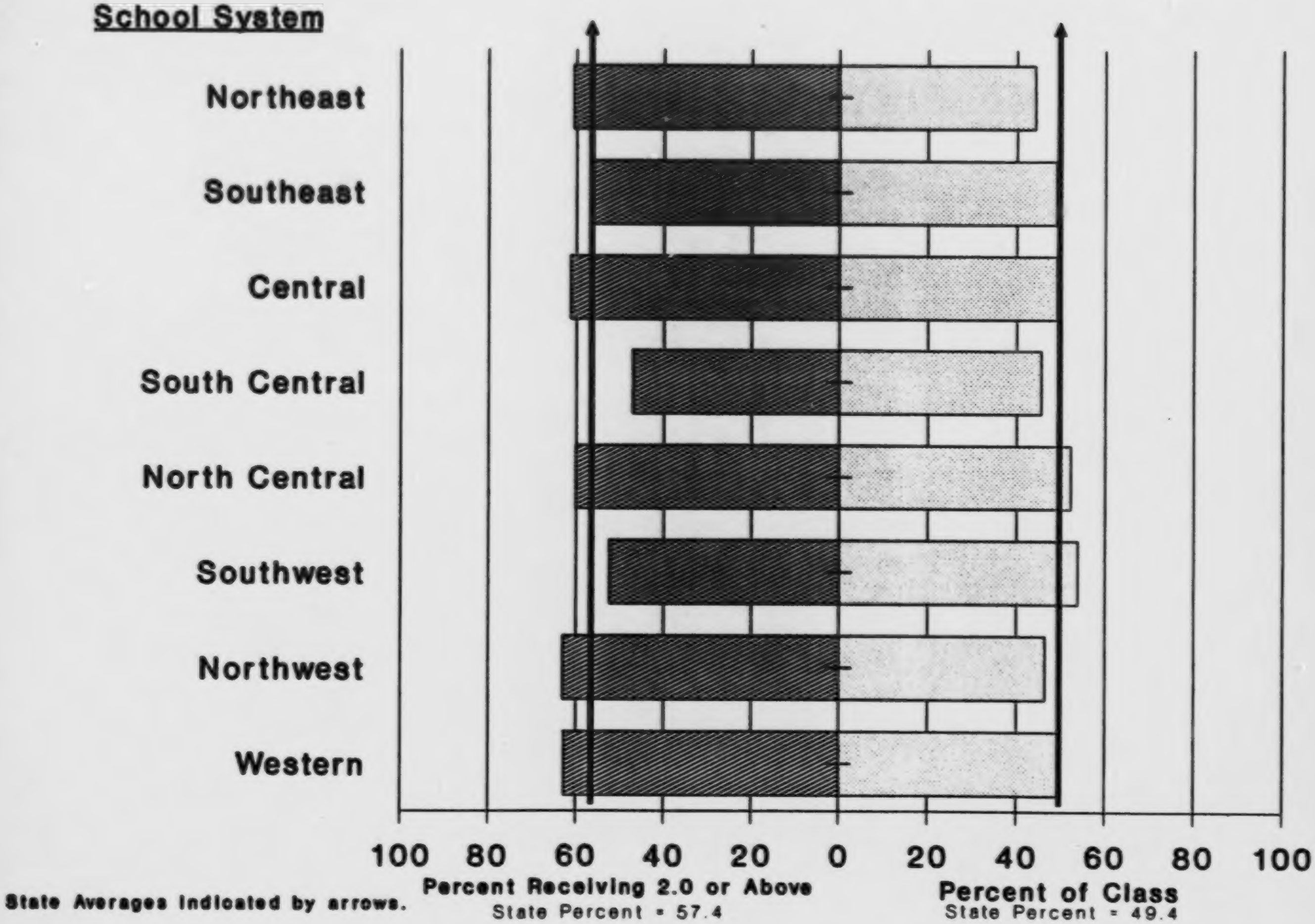
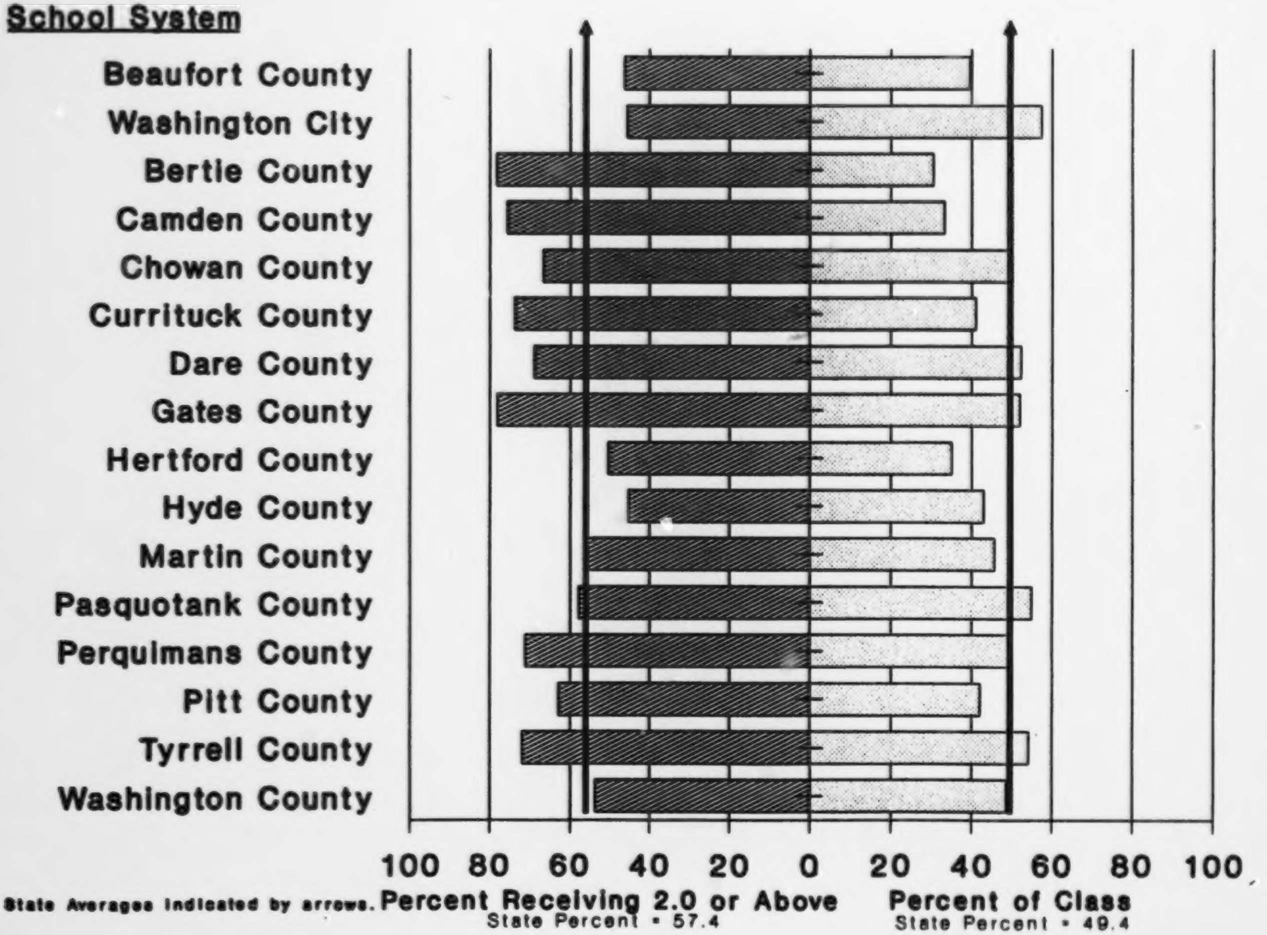


Figure 26

Proof Scores of 2.0 or Above and Participation Rates in the Northeast Region--1989



State Averages indicated by arrows.

Figure 27

Proof Scores of 2.0 or Above and Participation Rates in the Southeast Region--1989

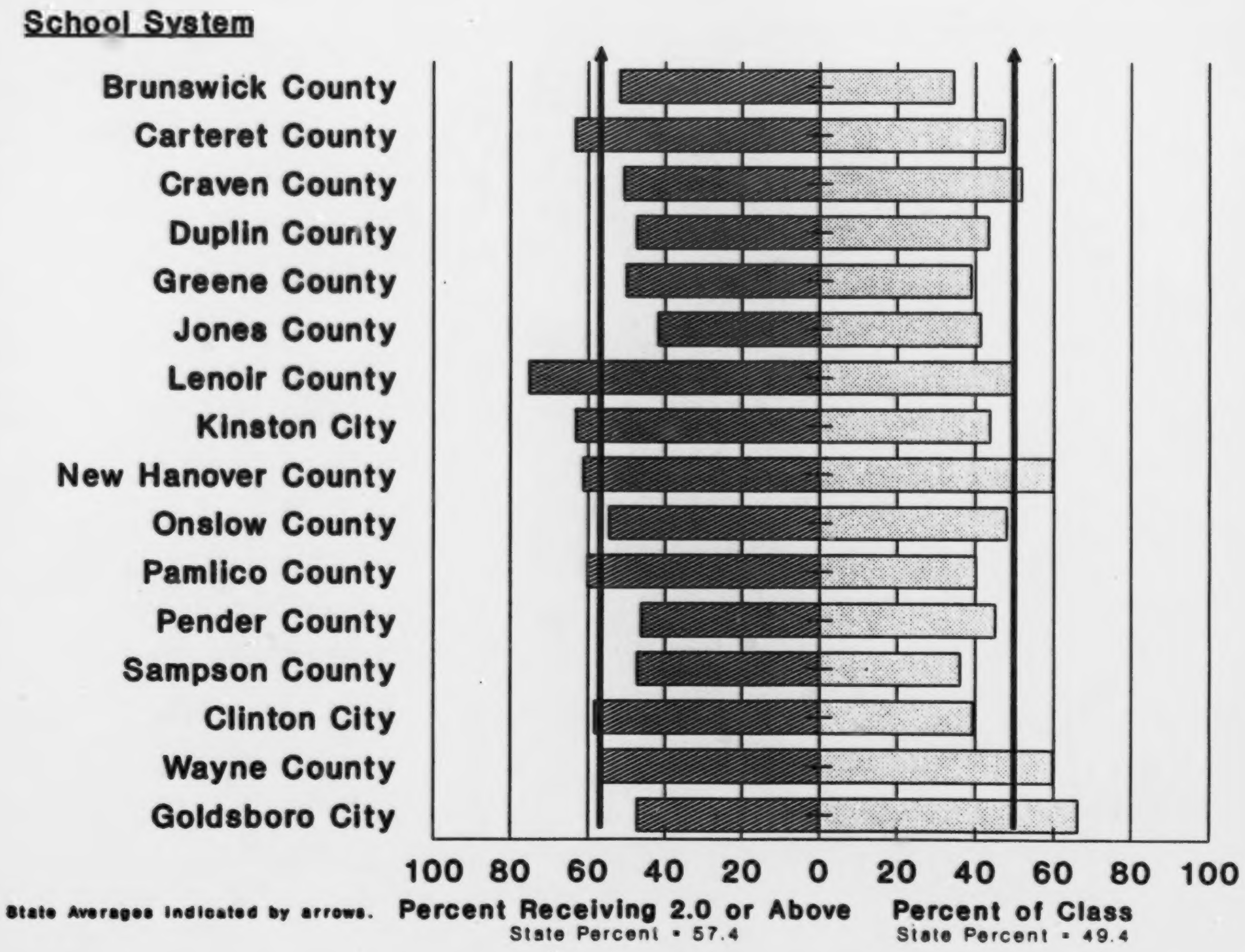


Figure 28

Proof Scores of 2.0 or Above and Participation Rates in the Central Region--1989

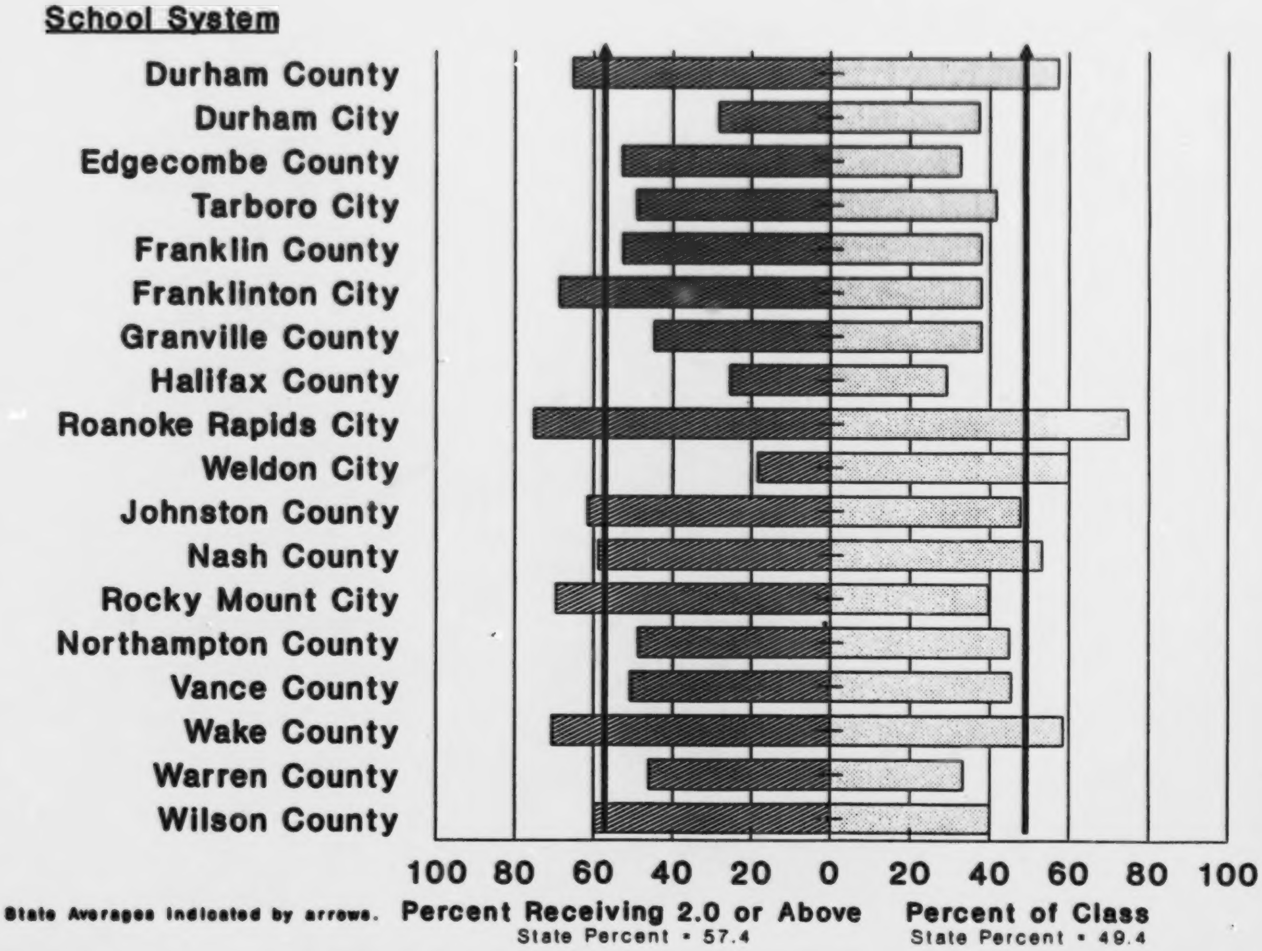


Figure 29

Proof Scores of 2.0 or Above and Participation Rates in the South Central Region--1989

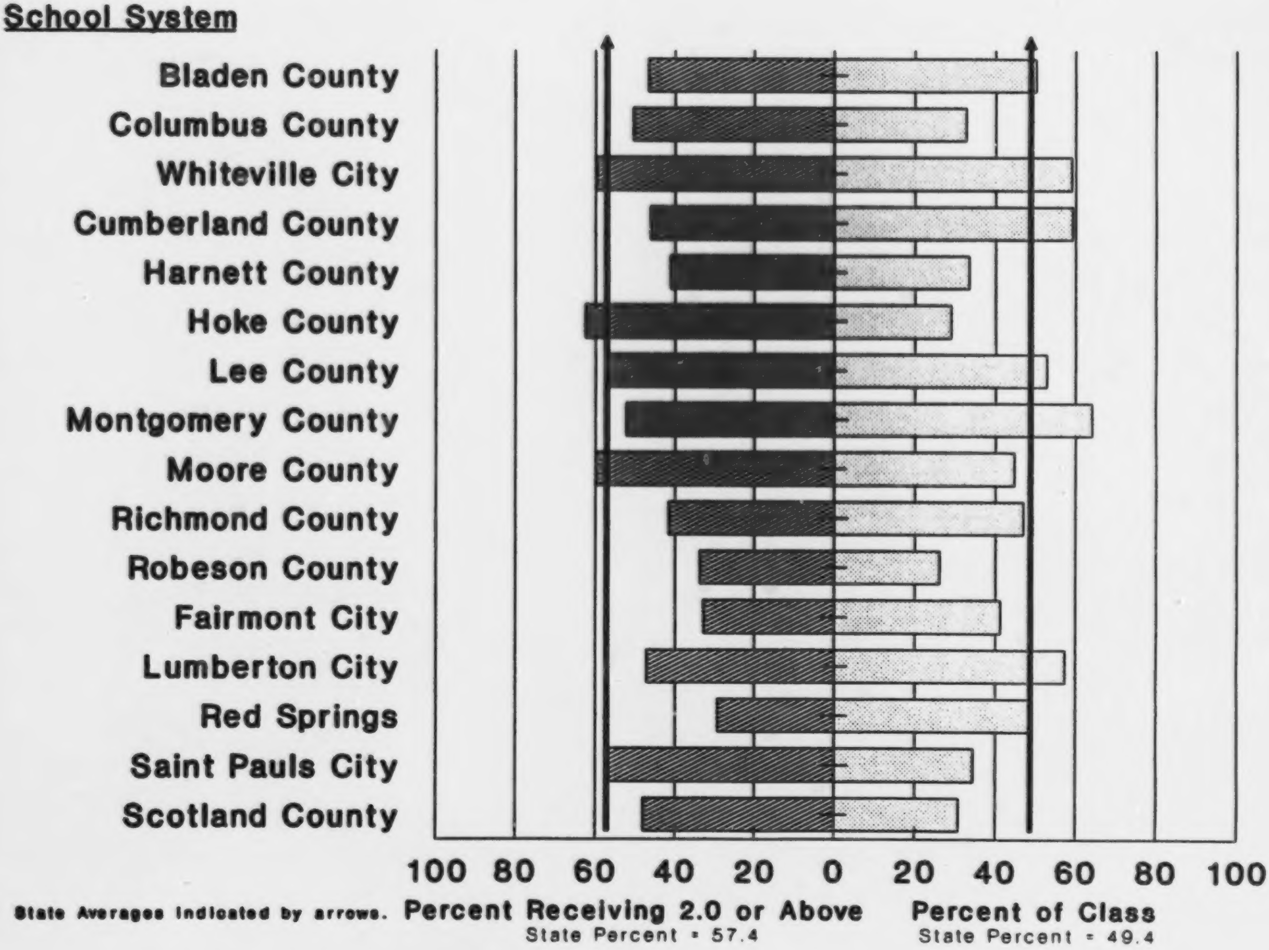


Figure 30

Proof Scores of 2.0 or Above and Participation Rates in the North Central Region--1989

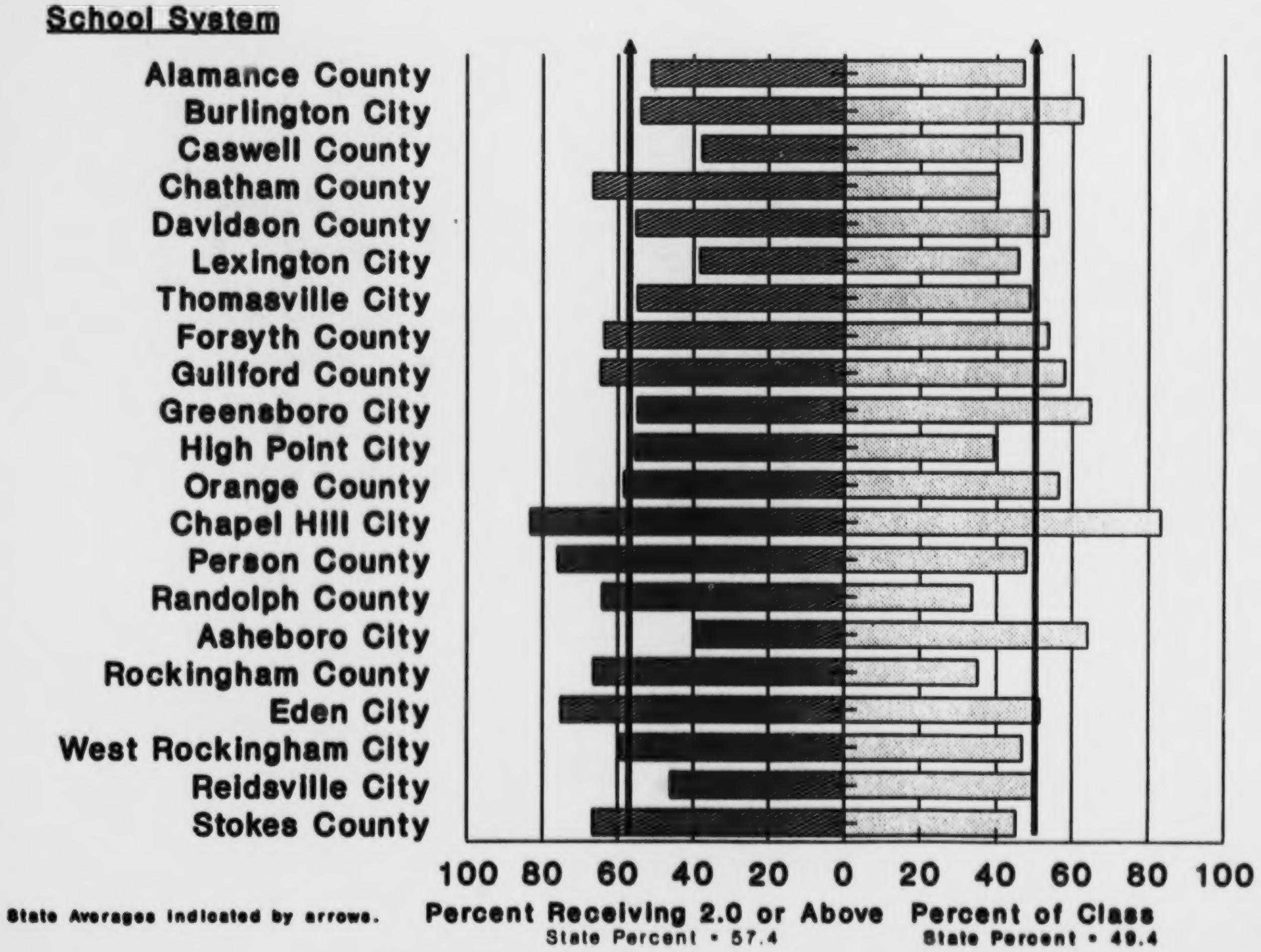


Figure 31

Proof Scores of 2.0 or Above and Participation Rates in the Southwest Region--1989

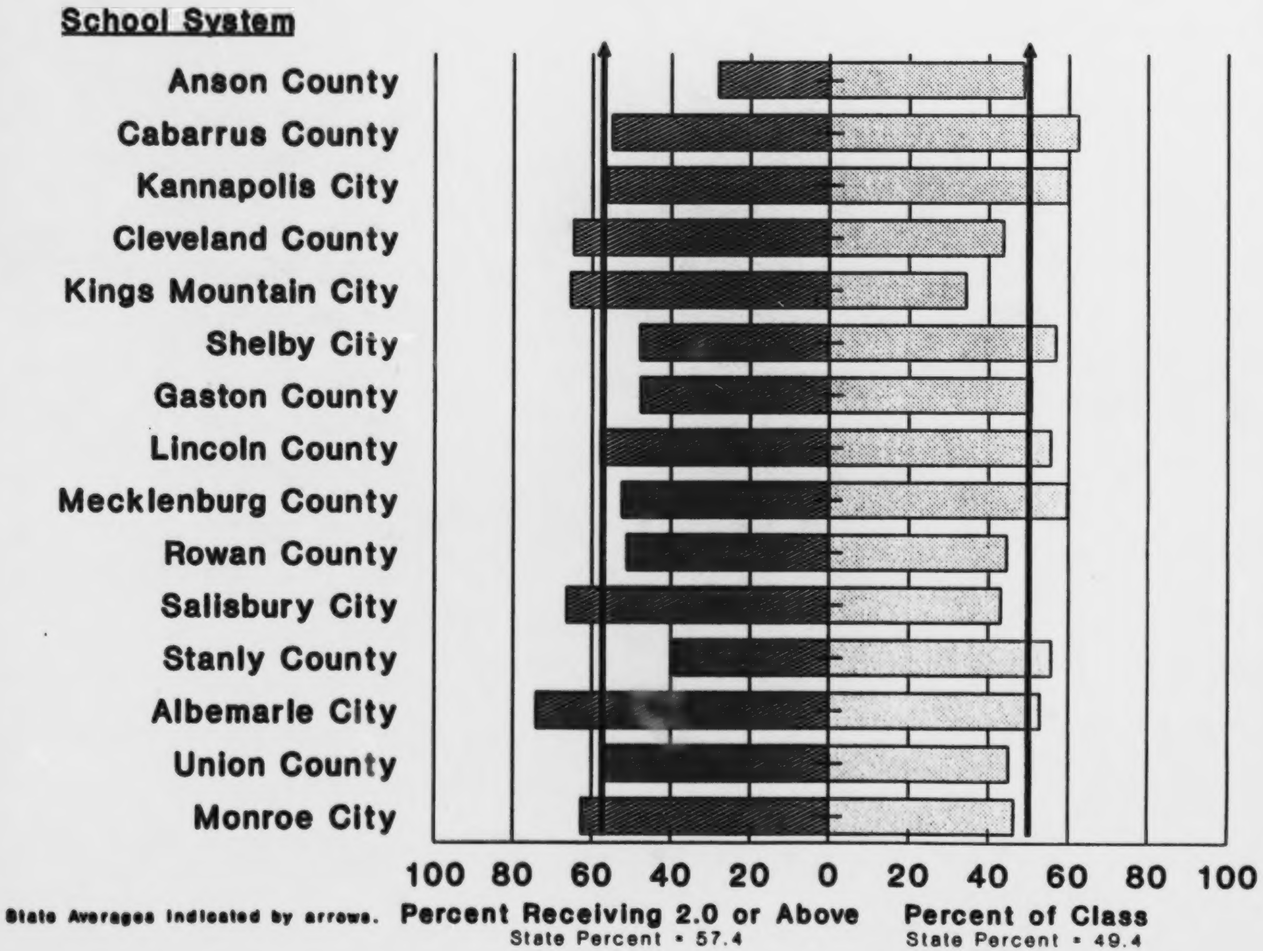


Figure 32

Proof Scores of 2.0 or Above and Participation Rates in the Northwest Region--1989

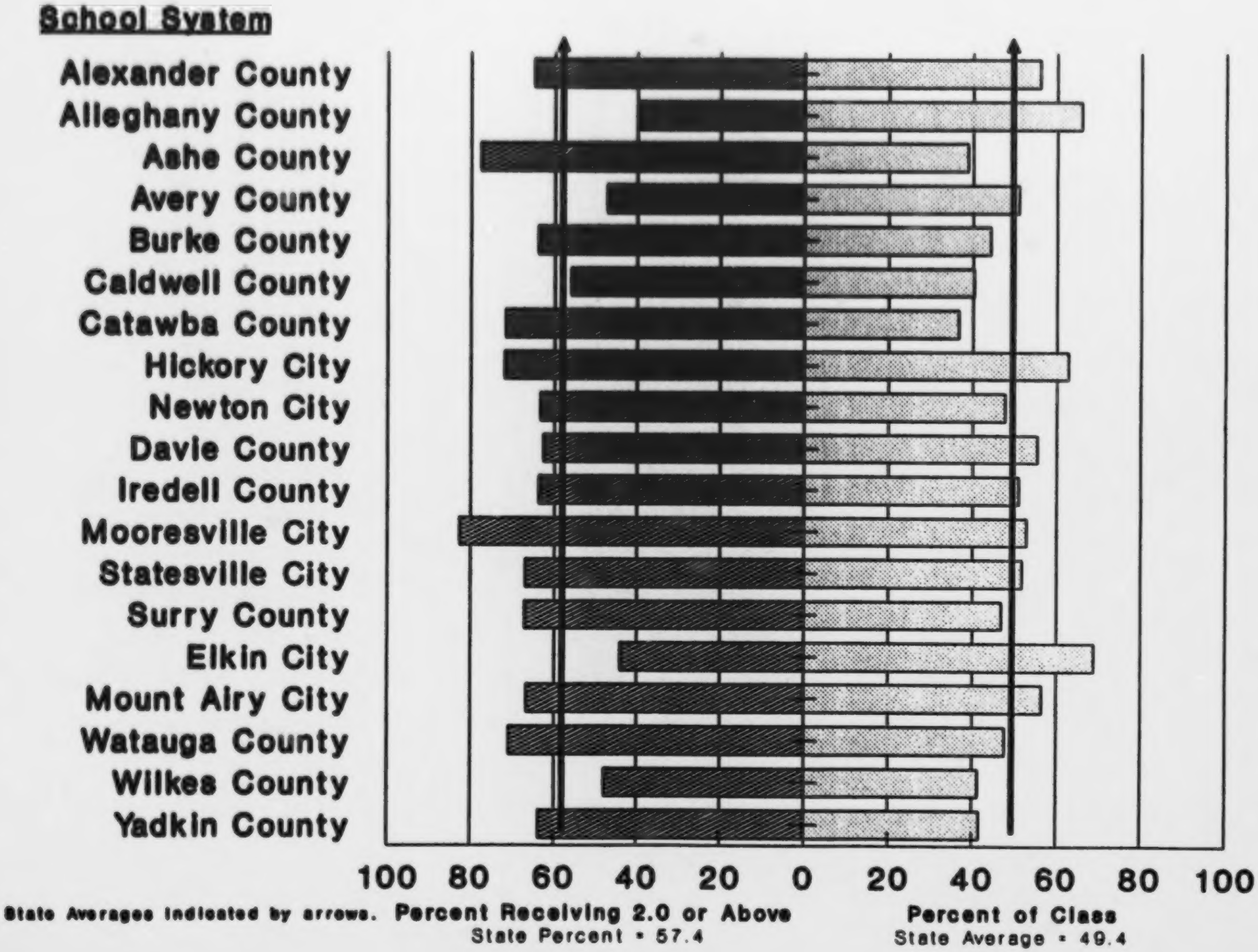


Figure 33

Proof Scores of 2.0 or Above and Participation Rates in the Western Region--1989

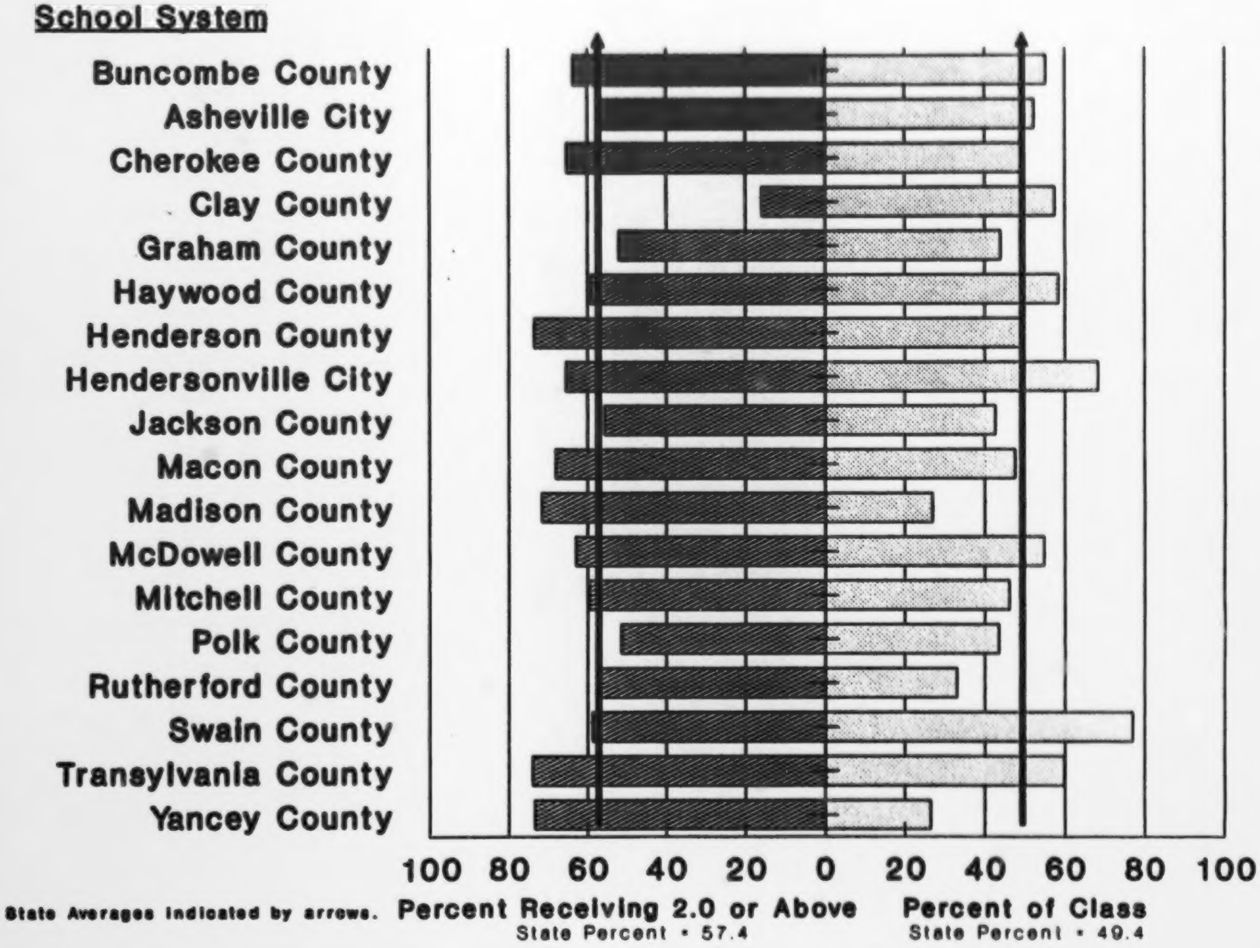


Table 16

Select Characteristics of Geometry Students in Public School Systems: 1989

REGION NORTHEAST

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
BEAUFORT COUNTY	131	39.5	0.0	32.1	42.1	47.3	11.5	5.4
WASHINGTON CITY	159	57.4	7.2	23.6	43.8	28.3	20.8	5.7
BERTIE COUNTY	127	30.5	2.4	21.2	76.8	72.2	32.0	17.6
CAMDEN COUNTY	28	33.3	0.0	2.0	30.7	17.9	11.1	7.1
CHOWAN COUNTY	106	49.8	11.7	23.4	50.7	34.3	13.7	7.5
CURRITUCK COUNTY	81	41.1	4.6	15.0	14.5	19.8	23.4	13.6
DARE COUNTY	123	52.3	6.4	26.9	5.2	4.9	10.9	8.3
GATES COUNTY	55	51.9	9.4	21.4	55.3	63.6	15.7	12.7
HERTFORD COUNTY	138	35.0	7.1	19.2	74.2	65.2	21.7	12.4
HYDE COUNTY	30	42.9	0.0	35.1	47.3	36.7	5.6	3.4
MARTIN COUNTY	229	45.5	5.0	32.9	55.1	44.5	21.6	9.2
PASQUOTANK COUNTY	229	54.8	9.3	35.3	45.4	45.0	10.5	12.7
PERQUIMANS COUNTY	64	49.2	0.8	27.7	43.5	30.2	16.7	12.5
PITT COUNTY	581	42.0	10.9	20.4	50.1	35.3	16.4	6.2
TYRRELL COUNTY	32	54.2	0.0	48.0	50.1	37.5	20.7	12.5
WASHINGTON COUNTY	106	48.4	5.9	28.6	61.1	59.4	24.1	11.4

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE GEOMETRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF GEOMETRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE GEOMETRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF NINTH GRADE IS THE PERCENT OF NINTH GRADE STUDENTS TAKING GEOMETRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING GEOMETRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT GEOMETRY BLACK IS THE PERCENT OF GEOMETRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT GEOMETRY LESS THAN HS EDUC IS THE PERCENT OF GEOMETRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 16, cont'd.

REGION SOUTHEAST

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
BRUNSWICK COUNTY	278	34.4	8.7	16.1	26.9	27.3	14.2	4.7
CARTERET COUNTY	293	47.4	9.1	17.5	13.3	10.3	15.4	4.8
NEW BERN-CRAVEN	579	51.7	5.9	30.1	36.7	28.2	9.2	5.4
DUPLIN COUNTY	272	43.4	8.3	22.5	43.4	41.9	12.3	11.6
GREENE COUNTY	92	39.0	5.5	15.8	60.9	44.6	39.3	8.8
JONES COUNTY	48	41.4	0.0	23.7	53.7	64.6	12.5	4.2
LENOIR COUNTY	282	50.4	10.6	32.3	33.4	28.4	17.3	8.2
KINSTON CITY	179	43.7	8.3	21.4	77.1	56.2	17.9	8.6
NEW HANOVER COUNTY	891	59.7	13.3	22.9	30.7	21.6	10.8	4.3
ONSLOW COUNTY	622	48.0	4.5	26.7	23.5	18.8	11.3	5.1
PAMLICO COUNTY	75	40.1	5.3	28.1	35.8	28.4	7.1	9.5
PENDER COUNTY	175	45.0	3.3	19.0	42.4	38.9	14.8	7.5
SAMPSON COUNTY	218	36.2	0.3	37.3	39.5	30.3	12.8	8.7
CLINTON CITY	99	39.4	5.6	26.0	48.0	38.4	8.5	3.1
WAYNE COUNTY	605	59.8	15.3	20.7	29.1	27.9	15.3	5.0
GOLDSBORO CITY	206	66.2	9.0	25.3	82.3	70.9	12.3	8.8

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE GEOMETRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF GEOMETRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE GEOMETRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF NINTH GRADE IS THE PERCENT OF NINTH GRADE STUDENTS TAKING GEOMETRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING GEOMETRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT GEOMETRY BLACK IS THE PERCENT OF GEOMETRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT GEOMETRY LESS THAN HS EDUC IS THE PERCENT OF GEOMETRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 16, cont'd.

REGION CENTRAL REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
DURHAM COUNTY	832	57.3	10.8	28.2	31.3	25.1	7.3	2.5
DURHAM CITY	248	37.3	2.0	24.2	90.4	93.5	18.7	5.0
EDGECOMBE COUNTY	163	32.5	0.2	20.2	59.3	60.5	25.6	13.0
TARBORO CITY	114	41.6	0.0	33.7	55.4	50.9	16.4	17.0
FRANKLIN COUNTY	163	37.8	11.4	15.5	43.2	34.2	11.0	9.3
FRANKLINTON CITY	48	37.8	18.1	15.7	61.4	36.2	44.3	12.5
GRANVILLE COUNTY	220	37.8	8.4	12.0	47.5	38.6	17.7	11.0
HALIFAX COUNTY	188	29.0	11.4	18.1	84.0	83.0	31.4	16.3
ROANOKE RAPIDS CITY	155	74.9	18.8	30.8	10.5	7.7	10.9	6.5
WELDON CITY	57	60.0	4.2	33.3	88.8	96.5	36.1	23.2
JOHNSTON COUNTY	577	47.7	10.2	26.7	25.2	19.4	16.5	8.0
NASH COUNTY	481	53.1	6.8	27.3	40.4	29.2	20.1	10.7
ROCKY MOUNT CITY	158	39.7	6.5	12.1	80.3	60.1	22.9	7.6
NORTHAMPTON COUNTY	146	44.9	11.4	14.8	79.7	73.8	27.2	15.3
VANCE COUNTY	236	45.3	6.0	20.9	57.2	40.7	23.8	6.0
WAKE COUNTY	2820	58.5	14.8	29.2	27.1	15.1	7.5	2.6
WARREN COUNTY	101	33.2	11.2	13.7	72.4	65.3	16.9	10.9
WILSON COUNTY	427	39.9	9.9	22.9	51.3	37.6	21.2	8.7

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE GEOMETRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF GEOMETRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE GEOMETRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF NINTH GRADE IS THE PERCENT OF NINTH GRADE STUDENTS TAKING GEOMETRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING GEOMETRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT GEOMETRY BLACK IS THE PERCENT OF GEOMETRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT GEOMETRY LESS THAN HS EDUC IS THE PERCENT OF GEOMETRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 16, cont'd.

REGION SOUTH CENTRAL REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
BLADEN COUNTY	245	50.1	3.1	32.8	50.8	42.4	15.6	9.4
COLUMBUS COUNTY	217	32.8	0.3	21.5	39.1	35.6	20.3	6.5
WHITEVILLE CITY	118	59.0	10.0	33.3	40.2	33.9	18.3	3.4
CUMBERLAND COUNTY	2003	59.2	8.2	19.6	40.6	40.4	10.2	5.8
HARNETT COUNTY	335	33.5	3.3	26.6	31.7	23.3	24.6	6.3
HOKE COUNTY	123	28.9	5.2	9.4	52.0	46.7	23.2	8.2
LEE COUNTY	287	52.8	9.6	20.3	31.2	22.3	15.5	5.6
MONTGOMERY COUNTY	227	64.1	17.2	32.2	36.7	28.6	26.8	9.3
MOORE COUNTY	328	44.7	4.2	29.4	29.4	21.2	15.6	5.2
RICHMOND COUNTY	331	47.0	7.9	22.6	39.6	34.5	15.6	8.9
ROBESON COUNTY	351	26.2	0.1	18.3	21.0	21.1	32.4	16.3
FAIRMONT CITY	63	41.2	1.3	29.4	49.9	42.9	17.0	11.1
LUMBERTON CITY	189	57.3	11.8	21.5	36.7	34.6	17.9	10.1
RED SPRINGS	74	49.0	0.0	30.6	45.1	45.9	20.2	16.7
SAINT PAULS CITY	40	34.5	0.0	17.6	43.3	32.5	1.2	12.5
SCOTLAND COUNTY	213	30.9	0.1	14.1	45.4	34.7	19.7	6.6

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE GEOMETRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF GEOMETRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE GEOMETRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF NINTH GRADE IS THE PERCENT OF NINTH GRADE STUDENTS TAKING GEOMETRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING GEOMETRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT GEOMETRY BLACK IS THE PERCENT OF GEOMETRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT GEOMETRY LESS THAN HS EDUC IS THE PERCENT OF GEOMETRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 16, cont'd.

REGION NORTH CENTRAL

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
ALAMANCE COUNTY	428	47.2	8.7	24.1	19.5	16.0	19.9	6.3
BURLINGTON CITY	305	62.4	12.9	28.1	34.1	25.3	14.4	5.0
CASWELL COUNTY	149	46.4	7.2	21.7	49.9	47.7	23.0	12.1
CHATHAM COUNTY	190	40.3	0.6	28.5	31.7	18.5	18.0	3.2
DAVIDSON COUNTY	717	53.5	11.6	33.7	3.2	2.8	16.1	9.3
LEXINGTON CITY	120	45.8	11.8	18.3	39.9	30.8	28.6	11.8
THOMASVILLE CITY	100	48.8	7.8	24.0	47.5	48.0	29.6	17.7
FORSYTH COUNTY	1598	53.7	14.5	19.5	36.6	26.8	11.1	3.7
GUILFORD COUNTY	1083	58.0	11.9	27.6	17.0	11.2	9.2	3.9
GREENSBORO CITY	1056	64.7	17.0	25.7	51.3	44.7	12.4	4.3
HIGH POINT CITY	269	39.3	14.3	14.4	48.8	28.7	19.1	7.9
ORANGE COUNTY	238	56.4	4.3	35.0	27.5	30.7	20.2	9.3
CHAPEL HILL CITY	300	83.3	21.7	35.1	21.9	9.7	7.0	2.4
PERSON COUNTY	195	48.0	12.8	19.3	37.2	28.2	22.6	8.4
RANDOLPH COUNTY	399	33.6	6.6	21.2	5.7	7.8	24.1	8.6
ASHEBORO CITY	165	64.0	15.9	31.4	16.0	8.5	17.9	4.2
ROCKINGHAM COUNTY	121	35.1	0.3	36.1	20.3	19.0	24.2	9.9
EDEN CITY	167	51.4	8.3	28.7	21.4	18.6	20.3	9.0
WESTERN ROCKINGHAM	142	46.9	3.3	25.4	20.1	26.1	28.1	16.5
REIDSVILLE CITY	137	49.6	8.7	19.7	47.3	43.1	25.5	7.3
STOKES COUNTY	224	45.2	13.1	11.9	7.7	10.3	19.6	5.8

NOTE: NUMBER TESTED IS THE NUMBER OF STUDENTS WHO TOOK THE GEOMETRY TEST. PERCENT OF CLASS IS THE TOTAL NUMBER OF GEOMETRY STUDENTS DIVIDED BY THE NUMBER OF STUDENTS IN THE NINTH GRADE CLASS. IT IS AN ESTIMATE OF THE PERCENT OF A COHORT OR CLASS OF STUDENTS WHO WILL TAKE GEOMETRY BEFORE LEAVING HIGH SCHOOL. PERCENT OF NINTH GRADE IS THE PERCENT OF NINTH GRADE STUDENTS TAKING GEOMETRY. PERCENT OF TENTH GRADE IS THE PERCENT OF TENTH GRADE STUDENTS TAKING GEOMETRY. PERCENT BLACK IS THE PERCENT OF TOTAL ENROLLMENT THAT IS BLACK. PERCENT GEOMETRY BLACK IS THE PERCENT OF GEOMETRY STUDENTS THAT IS BLACK. PERCENT LESS THAN HS EDUC IS THE PERCENT OF EIGHTH GRADE STUDENTS TAKING THE CALIFORNIA ACHIEVEMENT TEST IN 1989 WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION. PERCENT GEOMETRY LESS THAN HS EDUC IS THE PERCENT OF GEOMETRY STUDENTS WHOSE PARENTS HAVE LESS THAN A HIGH SCHOOL EDUCATION.

Table 16, cont'd.

REGION SOUTHWEST

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
ANSON COUNTY	190	48.8	11.8	25.3	61.0	49.7	15.3	8.1
CABARRUS COUNTY	620	62.4	12.9	27.0	14.8	11.0	13.4	5.5
KANNAPOLIS CITY	214	59.9	14.0	44.7	27.5	24.9	29.4	10.3
CLEVELAND COUNTY	284	43.7	0.0	31.8	25.5	15.0	18.5	6.1
KINGS MTN. CITY	105	34.2	11.1	10.0	23.7	25.7	21.5	5.8
SHELBY CITY	153	56.7	18.1	28.6	45.2	25.5	14.9	3.9
GASTON COUNTY	1226	50.7	6.2	28.2	17.6	15.4	25.9	10.7
LINCOLN COUNTY	366	55.6	8.5	25.9	11.8	10.9	23.0	7.5
MECKLENBURG COUNTY	3205	59.7	17.1	22.8	39.4	28.1	13.4	3.6
ROWAN COUNTY	479	44.5	12.8	19.7	16.0	15.9	15.7	8.0
SALISBURY CITY	84	43.1	13.3	22.3	57.6	39.8	11.2	8.3
STANLY COUNTY	305	55.8	17.0	26.3	12.8	10.2	16.7	8.3
ALBEMARLE CITY	88	53.0	2.4	29.1	27.6	13.6	20.5	4.5
UNION COUNTY	489	45.0	9.3	22.5	14.9	10.7	14.6	6.6
MONROE CITY	107	46.3	5.6	20.7	57.8	29.0	22.4	4.7

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Table 16, cont'd.

REGION NORTHWEST

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
ALEXANDER COUNTY	219	56.0	12.8	27.7	8.3	10.0	23.1	9.6
ALLEGHANY COUNTY	85	65.9	0.8	36.8	2.7	8.3	31.0	14.1
ASHE COUNTY	130	38.8	1.5	30.3	1.0	1.5	22.7	5.4
AVERY COUNTY	112	50.9	0.0	36.7	0.7	0.0	18.4	7.1
BURKE COUNTY	429	44.2	7.8	26.0	8.2	8.2	21.3	9.2
CALDWELL COUNTY	415	40.4	0.6	37.5	7.9	6.1	26.7	11.7
CATAWBA COUNTY	394	36.7	0.2	16.2	7.6	6.1	15.0	5.3
HICKORY CITY	228	62.8	17.9	30.0	26.5	13.3	21.9	5.3
NEWTON-CONOVER CITY	115	47.7	0.4	30.0	19.2	15.7	17.6	6.1
DAVIE COUNTY	210	55.4	11.6	29.5	10.5	5.7	8.6	3.8
IREDELL COUNTY	478	50.9	18.9	26.0	14.4	11.8	15.8	7.0
MOORESVILLE CITY	82	52.9	12.9	6.3	25.7	9.8	19.3	6.2
STATESVILLE CITY	132	51.8	0.0	32.7	55.0	31.1	24.2	6.9
SURRY COUNTY	321	46.9	8.8	28.9	4.5	4.4	21.1	8.4
ELKIN CITY	58	69.0	25.0	26.7	9.2	10.3	10.6	3.4
MOUNT AIRY CITY	74	56.5	0.0	17.8	12.5	12.2	22.8	8.1
WATAUGA COUNTY	166	47.8	2.9	29.1	1.4	1.2	16.9	4.2
WILKES COUNTY	364	41.4	4.1	24.7	6.3	9.1	22.4	9.1
YADKIN COUNTY	175	41.8	0.7	33.2	5.0	4.0	17.1	6.9

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Table 16, cont'd.

REGION WESTERN

REGION REPORT

	NUMBER TESTED	PERCENT OF CLASS	PERCENT OF NINTH GRADE	PERCENT OF TENTH GRADE	PERCENT BLACK	PERCENT GEOMETRY BLACK	PERCENT LESS THAN HS EDUC	PERCENT GEOMETRY LESS THAN HS EDUC
BUNCOMBE COUNTY	992	55.3	7.4	28.5	5.4	4.7	14.0	3.3
ASHEVILLE CITY	175	52.4	5.4	26.5	40.4	29.3	9.5	2.9
CHEROKEE COUNTY	165	49.1	0.6	38.2	2.2	1.2	21.1	10.6
CLAY COUNTY	61	57.5	0.0	34.2	0.8	0.0	22.6	6.8
GRAHAM COUNTY	47	43.9	15.0	18.0	0.0	0.0	15.1	4.3
HAYWOOD COUNTY	345	58.3	10.5	28.7	1.8	2.6	18.8	5.8
HENDERSON COUNTY	316	48.8	0.2	28.7	1.5	1.0	18.4	5.7
HENDERSONVILLE CITY	106	68.4	17.4	34.4	25.6	15.1	11.1	3.8
JACKSON COUNTY	129	42.6	6.6	28.4	1.2	3.1	20.1	7.0
MACON COUNTY	136	47.6	0.7	37.4	0.9	2.2	16.9	5.2
MADISON COUNTY	73	26.8	0.4	25.0	0.3	0.0	22.8	5.5
MCDOWELL COUNTY	313	54.8	10.2	31.5	5.1	5.8	20.4	9.3
MITCHELL COUNTY	92	46.2	5.5	30.2	0.1	0.0	25.6	7.7
POLK COUNTY	70	43.5	7.5	22.8	13.6	12.9	16.5	8.6
RUTHERFORD COUNTY	303	33.0	0.3	27.1	16.1	16.3	18.7	7.4
SWAIN COUNTY	101	77.1	13.0	36.7	0.4	0.0	23.3	12.1
TRANSYLVANIA COUNTY	223	59.9	8.1	32.8	7.0	7.6	24.7	4.5
YANCEY COUNTY	62	26.4	0.0	10.2	1.0	0.0	10.9	9.7

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STATE

Table 17

State Percentile Table for 1989

SUMMARY STATISTICS ON CORE TEST

NUMBER OF STUDENTS WITH VALID SCORES	43325
MEAN	37.5
STANDARD DEVIATION	10.3
VARIANCE	105.2
MEAN PERCENT CORRECT	62.6

HIGH SCORE	60
LOW SCORE	5

LOCAL PERCENTILES	RAW SCORE
90	51.57
75	45.30
50 (MEDIAN)	37.43
25	29.88
10	23.92

FREQUENCY DISTRIBUTION

RAW		CUMULATIVE		CUMULATIVE	STATE
60	86	43325	0.20	100.00	99
59	210	43239	0.48	99.80	99
58	314	43029	0.72	99.32	99
57	458	42715	1.06	98.59	98
56	522	42257	1.20	97.53	97
55	594	41735	1.37	96.33	96
54	661	41141	1.53	94.96	94
53	759	40480	1.75	93.43	93
52	784	39721	1.81	91.68	91
51	864	38937	1.99	89.87	89
50	944	38073	2.18	87.88	87
49	990	37129	2.29	85.70	85
48	1065	36139	2.46	83.41	82
47	1105	35074	2.55	80.96	80
46	1223	33969	2.82	78.41	77
45	1243	32746	2.87	75.58	74
44	1326	31503	3.06	72.71	71
43	1305	30177	3.01	69.65	68
42	1406	28872	3.25	66.64	65
41	1387	27466	3.20	63.40	62
40	1442	26079	3.33	60.19	59
39	1436	24637	3.31	56.87	55
38	1441	23201	3.33	53.55	52
37	1464	21760	3.38	50.23	49
36	1491	20296	3.44	46.85	45
35	1450	18805	3.35	43.40	42
34	1469	17355	3.39	40.06	38
33	1398	15886	3.23	36.67	35
32	1438	14488	3.32	33.44	32
31	1411	13050	3.26	30.12	28
30	1298	11639	3.00	26.86	25
29	1254	10341	2.89	23.87	22
28	1195	9087	2.76	20.97	20
27	1075	7892	2.48	18.22	17
26	1049	6817	2.42	15.73	15
25	919	5768	2.12	13.31	12
24	884	4849	2.04	11.19	10
23	752	3965	1.74	9.15	8
22	703	3213	1.62	7.42	7
21	581	2510	1.34	5.79	5
20	463	1929	1.07	4.45	4
19	371	1466	0.86	3.38	3
LESS THAN 19	1095	1095	2.53	2.53	2

Schedule for End-of-Course Testing: Revised May, 1989

	School Year							
Subject	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Algebra I	▨	■	■	■	■	■	■	■
Algebra II		▨	■	■	■	■	■	■
Geometry				▨	■	■	■	■
Biology	▨	▨	■	■	■	■	■	■
Chemistry				▨	■	■	■	■
Physical Science						▨	■	■
Physics					▨	■	■	■
English I: Reading & Grammar (Reading Comprehension, Editing, and Literary Terms)					▨	■	■	■
English II: Composing					▨	▨	▨	■
English III: Reading and Analyzing Literature							▨	■
Government & Economics						▨	■	■
U.S. History			▨	■	■	■	■	■
Health & P.E.							▨	■
Foreign Language (To be specified)								▨

▨ Development: Items written by N.C. teachers; edited and placed in booklets; reviewed by teachers; field tested with students

■ Testing and Reporting: Multiple forms in each class, common (core) and different items on each form, student and curriculum information